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PRACTICAL POINTS IN NURSING

FOR

Nurses in Private Practice

WITH AN

APPENDIX

CONTAINING RULES FOR FEEDING THE SICK; RECIPES FOR INVALID FOODS AND BEVERAGES; WEIGHTS AND MEASURES; DOSE LIST; AND A FULL GLOSSARY OF MEDICAL TERMS AND NURSING TREATMENT

BY

EMILY A. M. STONEY

Graduate of the Training School for Nurses, Lawrence, Massachusetts
Late Superintendent of Training School for Nurses, Carney
Hospital, South Boston, Massachusetts

Fourth Edition, Thoroughly Revised

CONTAINING 97 TEXT-ILLUSTRATIONS AND 8 COLORED AND HALF-TONE PLATES

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PREFACE TO THE FOURTH EDITION.

THE continued and increasing popularity of this volume has justified the preparation of a thoroughly revised edition.

The entire work has been carefully reviewed and emended, and a large amount of new matter has been added. The latest approved nursing technic has been incorporated and the newest procedures are described in detail.

Those portions of the book which treat of nursing in various diseases have been greatly amplified in accordance with the progressive spirit of medicine and its handmaid, nursing. The publishers, therefore, believe that in its fourth revised form the book will prove more than ever acceptable to a large circle of nurses.

PREFACE.

In preparing the subject-matter of this volume, whose *title-page* clearly indicates its design, the author has attempted to explain, in popular language and in the shortest possible form, the entire range of *private* nursing as distinguished from hospital nursing, and to instruct the nurse how best to meet the various emergencies of medical and surgical cases when distant from medical or surgical aid, or when thrown on her own resources, studiously refraining, however, from advising the nurse to act upon her own responsibility or to assume personal treatment of the patient except under circumstances of great urgency. There is simply placed before the nurse what the different diseases are, their characters and chief points of distinction and the attention required, their possible complications, and the treatment likely to be adopted in a given case by the family physician, so that suitable preparations may be made by the nurse.

An especially valuable feature of the work will be found in the directions to the nurse how to *improvise* everything ordinarily needed in the illness of her patient. In the sick-room the embarrassment of the nurse, through want of proper appliances due to unexpected conditions or to her environments, is frequently extreme; the difficulty may frequently be overcome by the simplest means when one possesses a knowledge of how to apply them.

There has also been attempted a logical division of the text, which includes the following sections:

I. The Nurse; her responsibilities, qualifications, equipment, etc.
II. The Sick-room; its selection, preparation, and management.
III. The Patient; duties of the nurse in medical, surgical, obstetric, and gynecologic cases.
IV. Nursing in Accidents and Emergencies.
V. Nursing in Special Medical Cases.
VI. Nursing of the New-born and Sick Children.
VII. Physiology and Descriptive Anatomy.

The latter section, while sketched briefly, will be ample for the purposes of the nurse. The *Appendix* contains much information in compact form that will be of value, and the full *Index* presents a ready medium for quickly consulting any desired topic.

The numerous illustrations added will be serviceable aids in making clear the application of certain lines of treatment falling specifically to the work of the nurse.

Finally, this discussion, being based on a series of lectures delivered before the Carney Training-school for Nurses, will serve as a text-book for student nurses and a useful teaching-book for those occupying positions as teachers in training-schools; and it may prove interesting to the "home" nurse who wishes to comprehend something of the purposes of the different methods adopted in nursing-treatment.

The Author's sincere thanks are due to Dr. John R. Slattery for his technical revision of the work and for other kind assistance, and to all who have helped by friendly suggestions.

EMILY A. M. STONEY.

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FOR NURSES IN

PRIVATE PRACTICE.

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Responsibilities of the Nurse.—In these pages the writer will endeavor to tell the nurse what she can do when nursing privately, especially among the poor, who have not the proper things to do with; what she can use in place of the things used in the hospital; and what she can do in an emergency when at a distance from medical aid, and when she must use her own knowledge and judgment. It is because the nurse is sometimes called upon to trust to her own knowledge and judgment that the writer desires her fully to understand, and to have an intelligent idea about, the different cases which are most likely to come under her care. The following instructions are not intended for hospital use; indeed, there would be no possible excuse for the nurse to act on her own responsibility in the hospital, as there is always a doctor within calling distance; while in private practice she is left alone with the patient, and is expected by the doctor or the surgeon to know what to observe and to do in emergencies until he arrives.

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The profession of nursing is one in which there is no limit to the good that can be done; it is also one in which every woman embracing it must " walk worthy of the vocation wherewith she is called." "A nurse should have such tact, as well as skill, that she will do what is best for the patients, even against their will, knowing how to manage the weakest and most irritable, and doing all that is necessary for them without their knowing it." "She must be scrupulously clean and neat in her own person, especially with regard to the arrangement of her hair, which should be smooth and well kept. The office of nurse is too high and too holy for any woman called to it to wish to devote much time to the adornment of her person. Her one object, as regards herself, should be to be clean, simple, neat, modest, sweet-tempered, and to know how to mind her own business"—to keep her health unimpaired by securing sufficient rest, sleep, food, and exercise, without which the best will break down and suffer in health.

A nurse should improve her mind by reading the best books at her command, by going out and visiting friends, and by attending the theater twice a month: this will keep her in touch with outside affairs, and she will be able to converse intelligently with her patients. Her manner toward her patients and toward all with whom she comes in contact should be kind, pleasant, courteous, and cheerful—repressing all attempts at familiarity. It should be remembered that while we cannot dictate the manner of other people toward us, yet we can to a certain extent have it what we would like it to be; and we can always control our bearing toward them. The nurse should cultivate a contented mind and a cheerful face, avoid affectation and all temptation to air her knowledge—a mistake that many nurses are prone to make—and learn to control her emotions. The patients should be made to feel that they are her first thought, and they will learn to have faith and trust in her.

Unlike physicians, nurses are not called upon to attend charity calls. Very few nurses during their first year of private practice are worth the large fees they ask and receive. This mercenary spirit is steadily increasing, instead of decreasing. It would be well for all nurses to remember the words of the late Dr. Agnew: "It is a great and a good thing to feel that you are not always working for mere money." This feeling a nurse will not have if she enters into the work for the love of the good that can be done in lessening the weariness of pain and misery with which she comes in contact.

No nurse should take up the work unless she feels that to serve the poor is her vocation. She must try how much she can do for each patient, remembering that, so far as the nature of the work admits of it, every poor person should be as well and as tenderly nursed as if he were the highest in the land. The very essence of nursing in the homes of the poor is management, tact, and thinking for the patient. Applications of poultices are not the only duties of a nurse, although they are in themselves of vast importance.

The writer wishes particularly to impress upon the nurse the responsibilities of night duty. It is in the night-time that a very large majority of patients require the most careful watching and nursing. It requires a very competent nurse to do night duty—one who is gentle, kind, charitable, and patient; a large stock of patience is always necessary because of the large demands that are made upon it during the night.

Qualifications of the Nurse.—The questions asked by physicians and surgeons before employing a nurse are: Is she neat and clean, and does she understand all the recent antiseptic methods? Is she competent to meet an emergency? Does she know what to look out for in the cases under her care, and when to send for the physician? Is she modest in assuming responsibility? faithful to the physician's orders? patient, and fitted for the cares of a severe and critical illness? All these questions are asked, together with others, and it is a nurse possessing just these qualifications that each one should wish to be.

Duties of the Nurse.—On first going to the house the duty of the nurse is to find out where everything that will be needed is kept, then to wait on herself quietly and without intruding.

The time of the nurse belongs to the family employing her, but she has full control of the patient and the sick-room. There is no place where the presence of mind and powers of observation of a nurse show so plainly as in the operating-room; so do the gentleness, modesty, refinement, and cheerfulness of a nurse shine clearly in the sick-room.

A nurse should be as little trouble to the family as possible, and *improvise* all she can, remembering that they are under very great expense. The same caution should be observed in dealing with the servants: she should be kind to them, and add as little as possible to their work in the kitchen or the laundry. She should wash and put away all glasses and dishes used for the patient, as is done in the hospital; they must not be left in the kitchen for some member of the family or the servants to wash; the nurse must do it herself.

The patient should closely be observed, and all that can be done to make her comfortable should be anticipated, not waiting to be asked for anything. The nurse should wear noiseless shoes, and move about the room quietly; she should look where she is going, and not knock against the bed or the furniture; and she should avoid everything that may annoy the patient.

The nurse should begin early in the evening to prepare for the night—to get everything that may be needed, and when moving around in the night she should make no noise, so that the patient and the family shall not be disturbed. Sleep must be taken when it is most convenient for some member of the family to relieve her; the same with the meals, which should be taken alone, unless the family really wish her presence at their table. At such times, when she is away from the patient, written orders for the substitute must be left, and she should make sure that the one who takes charge understands thoroughly how everything is to be done.

The answer to the question, Should a nurse refuse to take her meals in the kitchen? depends on the circumstances of the family. It does not at all lessen the dignity of the nurse to eat in the kitchen, a gentlewoman being always treated as one wherever she is. It is not degrading to assist in the kitchen when emergencies arise; it shows the true spirit of a nurse, and the kindness is not lost.

A nurse must not talk of her hospital days; she will find a number of patients very curious to hear of the different cases and operations that she has seen, but they must not be talked of; it has a depressing effect on the patient. A nurse must be cheerful and talk of cheerful things. Nor must she tell of her experiences in other families: all that she hears or sees in the family for whom she is working must be kept secret; she has no right to speak of one patient to another in private or hospital practice, or to criticise or discuss her patient's peculiarities outside of her report to the physician.

The directions of the doctor must faithfully be carried out, and in the absence of directions the nurse should think what he would like to have done. When she makes a mistake, it should be confessed at the first opportunity;

the physician will always be found very kind; but if mistakes are left for him to find out, he will naturally lose confidence in his nurse.

If any trouble should arise regarding meals, sleep, getting fresh air, or anything else, the nurse must not worry the patient about it; she should speak to the physician, who will always be found a warm friend.

A nurse will often work for doctors who treat their patients differently from the way she has been used to seeing them treated. The doctor makes the diagnosis and gives his orders as to the treatment of the case, and, no matter what the nurse may think, it must not interfere with her accurate and faithful execution of those orders. She should never be guilty of making suggestions to the doctor: she is there to carry out his orders, to observe every little thing about the patient, and to report to him in a clear, simple way; her judgment must never be allowed to prevent her from doing her duty to the physician in charge.

Some families may question the nurse very closely about the attending physician. She must be very careful how she speaks of him, and inspire all possible confidence in him, whether she has or has not worked for him before. The family may likewise question the doctor about the nurse; the battle is half won when the family has confidence in both physician and nurse.

Hospital Etiquette; the Nurse's Duties to her Superiors.—The difference between hospital nursing and private nursing is very great. The regularity of hospital life and the strict discipline which prevails are of great benefit to a nurse in assisting her to become punctual, trustworthy, patient, obedient, and courteous. Everything needed in the care of the sick is at hand in the hospital, and a sister-nurse and a doctor within calling distance. She has a number of patients under her care, whereas in private nursing she has to do with a single patient, and her success depends mainly upon making the relation one of satisfaction and esteem, and upon her ability to meet the sudden emergencies which may arise, having no longer the sister or doctor to call upon. She has also to meet anxious friends and relatives, who in their own opinion know how everything ought to be done.

The presence of a senior or a junior member of the hospital staff, the superintendent of the hospital, the superintendent of nurses, or strangers visiting the hospital is a severe test of the professional manners of a nurse. A nurse must always receive hospital officials standing, and remain standing like a sentinel on duty until they have left the ward or room. It is a courtesy due to the position which they hold. During the visit of a physician the nurses must be ready to accompany him, and answer any questions he may ask. If the head-nurse is in the ward, she will accompany the doctor on his rounds and answer all questions. A nurse must never answer a question or give the doctor any information about a patient or patients when the head-nurse is present, unless the question is put directly to her. The head-nurse is responsible for everything that occurs on the floor of which she has charge, and it is the duty of the nurses to keep her fully informed of everything relating to the patients. Perfect quiet must prevail while the doctor is examining his patient, particularly while he is using the stethoscope.

Etiquette when Nursing Privately.—Regarding the etiquette when nursing privately, there are no definite rules to be observed. It is a mark of respect for the nurse to rise when the physician enters the room, and

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to remain standing unless asked to be seated; she should hand him her report, answer all questions, then quietly leave the room. This is a good plan in both private practice and for hospital private patients, for in many cases the physician is the family friend, and there may be many things about which the patient would like to speak with the doctor, and not care to have the nurse hear. If the nurse observes this course from the beginning, it will save her the probable embarrassment of being asked to leave the room. Then, again, she will have an opportunity of speaking to the doctor of anything relating to the case of which the patient should not know.

She should also leave the room when a visitor comes, so that patient and friend can enjoy their talk alone; if the visit is limited, the visitor should be told when the time has expired.

A nurse should not whisper in the sick-room; it makes the patient think she is being talked about. It should be remembered that the hearing of a patient who is apparently insensible, unable to move or to speak, is often very acute, the lowest whisper being often quite audible. The nature of the illness therefore should not be discussed nor any but the kindest things said before a patient.

Dress and Personal Habits.—The dress of a nurse should be of cotton goods. She should always wear her cap; it is her "badge of authority." Her appearance must at all times be as though she had just been lifted out of a bandbox. At night she should wear a flannel wrapper and soft shoes and look as neat as in the daytime. She should shun curl-papers; under no consideration should she be seen with them or even be seen using curlingirons, or she will lose the respect of the patient, the family, and the physician.

The nurse should regard a daily bath as a necessity, not only for personal cleanliness, but in order to keep the skin healthy and active. A cold sponge, spray, or plunge is very desirable when well borne. If time for bathing in the morning is limited, the body may be washed with a wet towel, followed by a brisk rub with a coarse dry one. The care of the hands of the nurse is most important. With soiled hands she may easily become infected or carry infection to the patient. The nails especially should be attended to. They should be trimmed rather short and kept smooth with the nail-file. Some good emollient lotion should be used to prevent chapping and irritation and keep the skin soft.

Equipment of the Nurse's Bag.—Some of the things which every nurse should carry in her bag are—a clinical thermometer; a pair of surgical scissors and forceps; a bottle of brandy; a hypodermic syringe; a fountain syringe; two glass catheters; a flexible catheter; small bottles of corrosive sublimate tablets; carbolic acid; permanganate-of-potash crystals; oxalic-acid crystals and washing soda; rubber tubing; a razor; large and small safety-pins; needles and white thread; one-ounce graduated minim-glass; a medicine-dropper; temperature and nourishment charts; gauze sponges of various sizes; a small ice-pick; matches.

A fountain syringe will be found very handy in private practice. It can be used for a number of things—to wash out the stomach and bladder, for douches, as an irrigator, and the rubber-tubing attachment can be detached and used as a tourniquet.

Keeping the Records.—It is a good plan to write out the physician's orders on paper, for instance:

Milk, 6 ounces, at 10, 12 A. M.
2, 4, 6, 8 P. M.

Ordered medicine, 1 teaspoonful, at 11 A. M.
3, 7 P. M.

Whisky, ½ ounce, at 8.30, 10.30 A. M.
12.30, 2.30, 4.30 P. M.

Flaxseed poultices to chest, at 9, 11 A. M.
3, 5, 7 P. M.

The hours must be checked off as they are filled. If the orders keep about the same, the paper will last two days by checking the opposite way on the second day.

The day or night Report will run somewhat as follows:

DAY REPORT.

Mrs.———. **Extra-uterine.**

Milk, 2 ounces, 8, 9, 10, 11, 12 A. M; 1, 2, 3, 4, 5, 6, 7 P. M. Total, 24 ounces.

Whisky, 2 drams, 8^{30}, 9^{30}, 10^{30}, 11^{30}, 12^{30} A. M.; 1^{30}, 2^{30}, 3^{30}, 4^{30}, 5^{30}, 6^{30}, 7^{30} P. M. Total, 3 ounces.

Strychnin, gr. $\frac{1}{25}$, subcutaneously, 9, 11 A. M.; 1, 3, 5, 7 P. M. Total, $\frac{6}{25}$ths.

Milk, 4 ounces,
Whisky, ½ ounce, } by rectum, 10 A. M.; 2, 6 P. M. Retained.

Effervescent citrate of magnesium, bottle 1. Given in divided doses during the day.

Low enema of—
Turpentine, ½ ounce,
Epsom salts, 3 ounces,
Glycerin, 4 ounces,
Warm water, 12 ounces,
} at 9 A. M. Was not retained. Returned as soon as injected.

High enema of—
Turpentine, 1 ounce,
Magnesium sulfate, 1 ounce,
Glycerin, 4 ounces,
Warm water, 8 ounces,
} at 10, 11 A. M.; 1 P. M. Was not retained. Returned as soon as injected.

Rectal tube inserted, very little gas expelled. Abdomen very much distended.

Urinated at 10 A. M., 3 ounces,
" " 3 P. M., 6 ounces, } Total, 13 ounces.
" " 6 P. M., 4 ounces,

Bowels did not move.

Though patient did not sleep, yet she had a comfortable day.

NIGHT REPORT.

Mrs. ————————.

Magnesium sulfate, 1 dram, } 8 P. M.
Hot coffee, 1 dram,

Strychnin, gr. 1/25, subcutaneously, 9, 11 P. M.; 1, 3, 5, 7 A. M. Total, 6/25ths.

Whisky, ½ ounce, 10, 12 P. M.; 4, 6 A. M. Total, 2½ ounces.

Oxalate of cerium, grs. 5, at 9, 10. Total, 10 grains.

Nourishment—
Milk, 10 ounces, } Total, 15 ounces through the night.
Beef-tea, 5 ounces,

Temperature and pulse taken every two hours and recorded on chart.

Urinated at 9 P. M., 2 ounces,
" " 11 P. M., 3 ounces, } Total, 7 ounces.
" " 2 A. M., 5 ounces,

Bowels moved at 9, 11.30 P. M. } Very good movements, character loose; movements, though small, were very good.
" " " 2 A. M.

After bowels moved at 9 o'clock distention gradually disappeared; very little distention this morning. Passed considerable gas.

Slept continuously 1½ hours,
" " 1½ " } Total, 5 hours.
" at intervals 2 "

Had a comfortable night.

Another favorite way is to rule a sheet of paper, leaving spaces for the hour, temperature, pulse, respiration, nourishment, stimulants, medicine, sleep, and remarks. For instance:

DATE.................................

Hour.	Temp.	Pulse.	Respiration.	Nourishment.	Stimulants.	Medicine.	Urine.	Bowels.	Sleep.	Remarks.
7 A. M.										
8 "										
9 "										
10 "										
11 "										
12 "										
1 P. M.										
2 "										
3 "										
4 "										
5 "										
6 "										
7 "										
8 "										
9 "										
10 "										
11 "										
12 midnight.										
1 A. M.										
2 "										
3 "										
4 "										
5 "										
6 "										
7 "										
Total.										

These twenty-four-hour charts, or records, are very useful for operative cases in which the treatment is continually changing. The report should be made out and ready for the physician, and everything that has happened since his last visit should be written clearly and definitely; also what the nurse has done. This detailed report will save questioning in the presence of the patient.

II. THE SICK-ROOM.

Selection and Preparation of the Sick-room.—The sick-room should be on the sunny side of the house and capable of thorough ventilation. If there is a stationary basin in the room, it should be covered with paper or a board, or be kept filled with water, which must be changed often; this will prevent impure air coming up through the waste-pipe should the pipe not be properly trapped. The room should be as near the top of the house as possible, for the reason that the higher we go the purer is the air, and also that if a room on the lower floor is used the germs of the disease will be carried upward. If the light is too bright, the bed should be so made that the patient will lie with the back to the window, or a screen may be put before the window. If the case is disease of the brain or the eye, the room must be darkened; the curtains so arranged that there will be no flapping when the window is open, nor flashes of light.

Preparation of the Bed.—Probably the first thing that will need the attention of the nurse will be the bed. In very few families will she find the mattress protected, which should be done both for cleanliness and to lessen expense. Many persons think that in the absence of a rubber sheet or an oilcloth an old blanket or a comforter will do to protect the mattress, but such substitutes must not be used if they can possibly be avoided, as it is impossible to know where they have been or how dirty they are; they may be filled with germs. One can always procure newspapers, which will absorb the discharges, and which can be burned when removed. They are to be placed between the under sheet and the draw-sheet, which, if put on here, will keep the under sheet clean much longer.

In making the bed the under sheet should be well tucked in at the top and sides, even if it is a little short at the bottom, for it is easier to pull an under sheet down from the bottom than to pull it up from the top. Next comes the rubber sheet, oilcloth, or newspapers. The four corners of the rubber sheet must be pinned to prevent wrinkling. The smooth end of the draw-sheet must come under the patient's back. The upper clothing must be well tucked in at the foot, still not too tightly, and the nurse should guard against a weight of clothing lying on the patient's chest; if the sheets or blankets are very long, the surplus must be brought down to the foot of the bed.

Changing the Bed-clothing.—Before beginning to change the bed-linen or the body-linen the nurse should get everything ready and thoroughly aired and warmed. The patient is moved to the other side of the bed, and the upper and under sheets are loosened; then the upper clothing and under sheets are pushed well over against the patient's back, and the clean sheet, rubber, and draw-sheet inserted, the under sheet being tucked in at the top and sides, and rolled up close to the soiled sheet (Fig. 1).

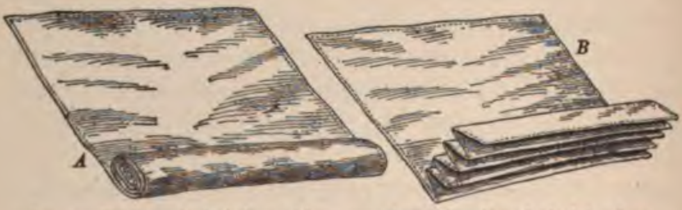

FIG. 1.—Changing the bed-sheet without removing patient from the bed (A, sheet partly rolled; B, sheet partly folded).

The upper clothing is then spread out, and the patient moved back to the clean side, after which the soiled sheets can be removed, and the clean sheets be well stretched and tucked in at the top and sides. To change the upper sheet, the spread and one blanket are removed; over the soiled sheet put the clean sheet and blanket; then, with one hand holding the clean sheet and blanket, the soiled sheet and blanket are drawn down toward the foot of the bed and removed with the other hand. In changing the bed in this way we guard against exposing and chilling the patient.

When the patient cannot turn on the side, the bed-linen should be changed from the top, the soiled sheet being first loosened at the top and sides and pushed well down under the pillow. Another person must assist at the other side of the bed in working down the two sheets; the shoulders, back, and upper part of the thighs of the patient must be raised with one hand, while the sheets are worked down with the other hand. In case of a fractured limb, one person must support the limb above and below the fracture, taking care to raise the limb very gently.

When arranging the pillows, the head of the patient should be lifted and supported by the nurse's arm, her hand supporting the back; with the other hand the pillow is turned, the lower pillow being brought under the shoulders to support the back, the upper one to support the head without bringing it too far forward or too far backward. The patient must be permitted to suit herself in arranging her pillows, as every patient has a favorite way. A pillow should never be shaken up on the bed; the upper pillow should be removed and shaken away from the bed, then the second pillow taken out and replaced with the fresh one, so that the patient will always have one pillow.

Bed-making for Different Cases.—We will now consider the *making of beds for the different cases* which come under the nurse's care. In private practice the supply of bed-linen may be very limited, and for this reason it would be well first to put on the under sheet, then the protector, which may be of rubber, ordinary table oilcloth, or newspapers, then the draw-sheet; by so doing the under sheet will be kept clean much longer.

Medical and Surgical Beds.—A medical and a surgical bed is made with an under sheet, a protector, a draw-sheet, and the usual upper clothing. If the bed is to be prepared for a patient with a broken limb, a wide board, table-leaf, or small strips of board (slats) or an ironing-board must be placed across the middle of the bed, under the mattress, to make the bed firm and prevent sagging.

Obstetric Bed.—An obstetric bed is made with an under sheet, a protector, and a draw-sheet, then over these a second protector and sheet; this is called a "temporary" bed, which, after delivery, is easily removed, and the patient lies on a clean bed; both beds during labor must be pinned securely to the mattress at each corner, the protectors also being pinned at their four corners. If the bed is a large double bed, then one side of it should be prepared, or the lower part of one side. After delivery the patient is lifted to the other side, or to the upper part of the bed, whichever has been prepared. Here the writer again warns the nurse not to use old comforters or blankets, unless positively sure that they are clean; if there is any doubt about it, then give way to the doubt by not using them.

Cross-bed.—A cross-bed is very often used for gynecologic examinations and minor operations: the pillows are arranged across the bed in the middle, which arrangement brings the hips of the patient to the edge of the bed; across the mattress under the sheet is slipped a table-leaf or board, which will, to a certain extent, take the place of the examining table; the patient lies upon a hard surface, thus preventing the body sinking into the bed. A sheet and a blanket are the upper coverings.

Divided Bed.—Some surgeons like the ***upper bed-clothing divided*** for abdominal cases. For this form of bed there are needed two sheets and two single blankets, which are doubled, placed over the patient, and meet in the centre, the sheets first, then the blankets. The upper clothing is thus divided into two distinct halves; the bed-spread being put on as usual. When the dressing is to be done, the spread is thrown back and the sheets and blankets parted, so that unnecessary exposure of the patient is guarded against.

Water-bed and Air-bed.—Water-beds and air-beds are used in cases of long illness, in cases in which bed-sores are present or in which there is a tendency to their formation, and in cases in which there is much moisture. The *water-bed* is placed on the bed-springs, which should be covered with rubber sheeting, a comforter, or paper, to prevent rusting, and the bed filled with water (at a temperature of about 100° F.) by means of a funnel and pitcher. To empty a water-bed, it is laid in a slanting position until all the water has run out; it is then rolled up and laid away. India rubber, if unused for any length of time, becomes hard and is apt to break; for this reason the bed should be filled every six weeks or oftener and the water allowed to remain in it three or four hours.

The *air-bed* is filled with air by means of a pair of bellows or an air-pump: after filling, it is made up in the usual way. Care must be taken that these beds are not pricked with pins, or they will collapse.

Appliances for the Relief of Bed-patients.—In very few families will a nurse find a *bed-cradle*, a *screen*, a *bed-rest*, *pads*, and *rings*.

The cradle (Fig. 2) can be improvised by taking one or two chairs, placing them backs uppermost, and securing them by tying their two lower legs to the sides of the bed; to be sure, they look clumsy, but a chair is always to be had in the absence of anything else. Half barrel-hoops, with a string fastened to each end to be tied to the sides of the bed, make a good cradle; three halves are all that are needed. A cradle must always be placed under the blankets, the sheet covering the patient to prevent her taking cold.

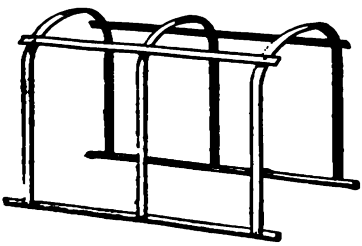

FIG. 2.—Cradle for protecting patient from pressure of bed-clothes.

Bed-rest.—A straight-backed chair answers nicely for a bed-rest; one pillow should be carried well down in the small of the back, another (if there are only two) is placed above for the head and shoulders.

Bed-screen.—A clothes-horse covered with a sheet, a blanket, or a shawl makes a very good screen; it can be made quite attractive by tying the corners of the covering with ribbon and pinning on it photographs or pictures cut from illustrated papers; they will help to amuse the patient, and should be renewed from time to time: if the disease is contagious, of course the pictures should be burnt after they have been used.

Pads and *rings* are used to relieve pressure. When an air-cushion or water-pillow cannot be obtained, such pads and rings (Fig. 3) may be made of cotton-batting, blanket, compress, oakum, horse-hair, straw, or even of a sheet, formed into a circular pad (having a hole in the centre), covered with a compress, and wound around with a bandage to keep it in place.

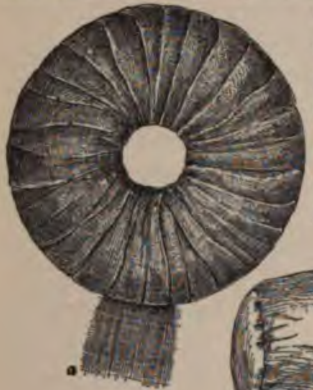

Fig. 3.—Heel-pad or ring: *a*, end of bandage.

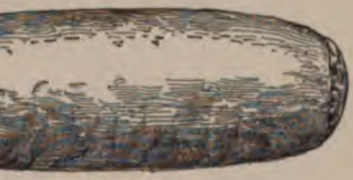

Fig. 4.—Bed-cushion.

A *cushion* (Fig. 4) for the foot of the bed to prevent

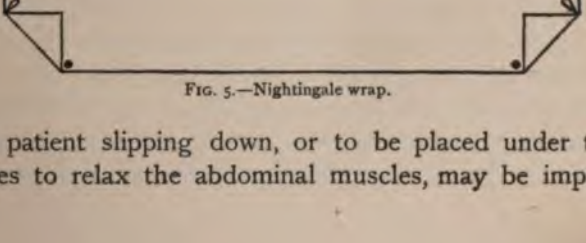

Fig. 5.—Nightingale wrap.

the patient slipping down, or to be placed under the knees to relax the abdominal muscles, may be improvised by putting a clean blanket or a comforter in a pillow-case.

During convalescence the *Nightingale* wrap will be found useful. It is made of two yards of flannel of ordinary width. A straight slit 6 inches deep is cut in the middle of one side; the points are turned back to form the collar. The points farthest from the collar are turned back to form cuffs. Buttons and button-holes are added, as shown in the illustration (Fig. 5). The wrap can be ornamented if desired.

Care of the Sick-room.—It should be remembered that the sick-room is the home of the patient during the time she is in it; hence great pains should be taken by the nurse to keep the room clean, the air pure and fresh, and herself bright, cheerful, quiet, and gentle, so that when the illness of the patient is a thing of the past, she will look back to the pleasant room, the systematic way in which everything was done, the kindness of the physician and nurse. Sweeping, if done at all, must be done slowly, the broom being kept near the floor, lest the dust be thrown around and back; the sweepings must be gathered up and burned. Instead of sweeping, it is better practice to wipe up the floor (or the carpet, if there be one) with a damp cloth. A damp cloth should be used to dust with; if a feather-duster or a dry cloth be used, the dust is thrown around the room and settles again. If there is a fire in the room, the coal should be wrapped in paper or placed in paper bags before carrying it to the room; it can then be dropped on the fire without noise.

Hygiene of the Sick-room. — *Temperature.* — The temperature of the room must be kept as even as possible—from 65° to 70° F. A point to be remembered is that the temperature decreases at night, and that between the hours of 12 and 4 A. M. the vital powers are at their lowest ebb; the sick patient must be carefully watched, and hot drinks be given and extra blankets and heaters applied if necessary. The temperature must be regulated by opening or closing the registers, and applying extra clothing, not by closing the windows, thus shutting off the fresh air. Dry air, which is irritating, can be made moist by keeping a kettle of boiling water in the room, or by dropping very hot bricks into a pail of water, or, if there is a fire or register in the room, blankets or sheets wrung out of water may be hung up to dry.

Air.—The air of the room must be kept pure, wholesome, and cool. To keep a room cool in hot weather is not always an easy matter, but good results have been obtained by keeping the windows and blinds closed during the day, thus shutting out the hot air and sun, and opening them in the evening when the air has become cooler. If the hot air be let into the room during the day, it remains, and the room is hot for the patient at night; whereas, if the windows and blinds be kept closed during the day and opened in the evening, when the air is cooler, the patient may be able to sleep. Another way, and one which also gives to the room a very cool appearance, is to place near the window the branch of a tree in a tub containing large pieces of ice.

Ventilation.—Ventilation is the process whereby impure air, in a confined space, such as a room, is replaced with pure air. One of the duties of the nurse is to see that the patient is kept supplied with fresh air. In almost every case the window can be kept open 1½ inches at the top without injury to the patient; hot air rises and displaces the cold air, which becomes warmed as it descends. If there is a fireplace in the room, a small fire may be made, which will direct the impure air up the chimney; a lighted lamp or candle will also direct an upward current. A board from 4 to 6 inches wide may be placed under the lower window-sash, and the fresh air will enter between the sashes (Fig. 6), thus preventing a draught. Opening the window widely top and bottom, and covering the patient, who, if afraid of the air, may hold an open umbrella before her or may have a screen placed before the bed, will air the room thoroughly; airing should be done for a few minutes every morning and evening. Many patients will object to the window being open at night, but the night air is purer than that of the day. It is said that the air in Manchester, that great manufacturing district—"the workshop of England," as it is called—is purest after 10 P. M., as then there is no smoke from the immense factory chimneys, and other conditions which tend to make the air impure are lacking. Bowel movements, urine, vomited matter, soiled linen, and dressings, inasmuch as they make the air impure, should always be removed immediately from the room. The patient should have all the sun possible.

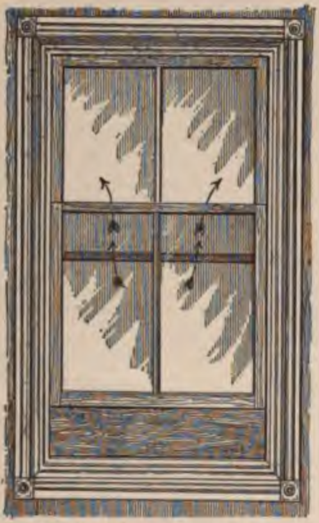
FIG. 6.—Window ventilation.

III. THE PATIENT.

I. NURSING IN MEDICAL CASES.

IN reporting to the doctor the nurse must remember two things—namely, that he wants facts, not opinions, and that he is dependent upon her for a faithful and accurate account of the patient's condition since his last visit; he must be told things just as they are, nothing added to or taken from the facts. Many things which the nurse may think too simple to report may be very important to the doctor, and may help him considerably in making his diagnosis. The temperature, pulse, and respiration must be taken and be recorded on the chart.

1. GENERAL OBSERVATIONS IN MEDICAL CASES.

The Pulse.—The pulse, temperature, and respiration, which are called the "three vital signs," are so closely connected that whatever affects one generally affects the others. Every time the heart contracts blood is thrown into the arteries (see p. 317), which are distended on receiving the blood; it is this distention, this rising up of the wall of the artery at regular intervals, corresponding with the beatings of the heart, that is called "the pulse."

In feeling the pulse we should determine its frequency (which tells us the number of times per minute the heart beats), its force, its fulness, and its regularity. Position and action alter the pulse-rate; for instance, it is generally faster when standing than when sitting, and faster when sitting than when lying; it is slower in sleep and faster when dying; it is slower in old age than in middle life, slower in men than in women, faster in children than in adults, faster, again, during excitement or exercise.

Frequency and Varieties of Pulse.—We notice the frequency of the pulse—that is, how fast or how slow it is; when we say a pulse is *frequent*, we mean that it beats about 105 to 110 times per minute; a *rapid* pulse is from 120 to 140; and a *running* pulse is above 140, and is also weak.

A pulse is said to be *regular* when the beats occur at regular intervals and are of equal strength. A pulse is *full* when the artery is distended by a large volume of blood. In an *irregular* pulse the intervals between the beats are unequal, or some of the beats are feebler than others. A pulse is *intermittent* when a beat is dropped every few beats, the pulse being generally otherwise regular; this pulse may occur in health, or it may be due to some heart disorder, or to neurotic conditions, or to the immoderate use of tea, coffee, tobacco, etc. A pulse is *compressible* when it is soft and easily obliterated by pressure with the finger; it is *incompressible* when it is hard and not easily obliterated by pressure with the finger. It is of *high tension* when the artery remains persistently full between beats and is resisting to the finger; it is of *low tension* when it is soft and easily compressed—non-resistant to the finger. The pulse is said to be *dicrotic* when there seems to be two beats to each beat of the heart, the second beat being smaller than the first. In reality there is but a single beat, the larger one, which must be counted; the second and smaller beat, which must not be counted, is an exaggerated "dicrotic wave" or recoil wave, a secondary wave in the blood-current corresponding to the closure of the aortic valves, and not due to a second beat of the heart. This fact is very important for the nurse to remember: the large beat is to be counted, and not the smaller wave which comes immediately after it. If there be any difficulty in making the distinction, the nurse should place one hand over the heart and with the other she should feel the pulsations in the artery at the wrist or the temple, whereupon she will notice that a single heart-beat occurs to what seems to be two beats in the arteries.

Taking the Pulse.—The way to take the pulse is to place two or three fingers on the radial artery at the wrist or on the temporal artery just in front of the ear, and to count the pulsations preferably for a full minute, or for at least a half minute and then multiply the result by two. The thumb should not be placed on the artery, because this method of taking the pulse is awkward, and because the pulsations of the artery in the thumb are frequently so readily perceptible as unconsciously to lead the nurse to determine her own pulse-rate rather than the patient's.

The pulse in the fetus is	from	130 to 160	per minute.
In the infant at birth	"	130 to 150	"
At 1 year	"	110 to 130	"
At 2 years	"	90 to 115	"
At 3 "	"	80 to 110	"
At 7 "	"	72 to 90	"
At 12 "	"	70 to 76	"

At puberty the pulse may be from 80 to 85 per minute, because at this time the nervous system is more or less excitable; in the prime of life it is from 70 to 75; in old age, from 65 to 70. In very old age it may rise slightly. The normal pulse of some persons is rather high, while that of others is as low as from 60 to 40.

Body-temperature.—The normal temperature of the body in adults is 98.6° F.; but, like the pulse-rate, it may be slightly higher or slightly lower than the average, and still be normal for the individual. The body-temperature is subject to diurnal fluctuations of a fraction of a degree, which are physiologic. Thus, it gradually rises from about 7 or 8 o'clock in the morning until about 7 or 8 o'clock in the evening, whereupon it gradually falls. It reaches its maximum between 5 and 8 P. M., and its minimum between 12 and 4 A. M. In infants and in children below the age of puberty the temperature is often slightly higher than in adults, and it is much less stable, being readily disturbed by slight causes. In advanced life the temperature is frequently persistently subnormal. In addition, the body-temperature is commonly slightly elevated after a full meal on account of the activity of digestion, and it may be increased by exercise or by emotion, especially in children and in certain susceptible, particularly hysterical, patients. Profuse perspiration and immoderate indulgence in alcoholic beverages tend temporarily to lower the body-temperature.

The following terms have been applied to different degrees of body-temperature:

Algid collapse,	below	95° F.
Collapse,	from	95° to 97° F.
Subnormal,	"	97° to 98° F.
Normal,	"	98.4° to 98.6° F.
Subfebrile,	"	99.5° to 101° F.
Moderate fever,	"	101° to 103° F.
High fever,	"	103° to 105 °F.
Hyperpyrexia,	"	106° F. and above.

A body-temperature below 95° F. or above 108° F., if it persists for any length of time, is likely to be followed by death. In some cases, as death approaches, hyperpyrexia gradually increases and may become extreme, the temperature reaching 110° F. and more. In a case of tetanus recently seen the thermometer just before death registered a temperature of 109° F., one hour after death 111° F., and two hours after death 112° F. In sunstroke the temperature may be 112° F. or above. Hysterical patients have been known to put the bulb of the thermometer in a cup of hot milk or tea, or in a hot-water bag, and to shake the mercury up, when the attention of the nurse has been called to other things, thus producing apparently an alarmingly high temperature.

More or less persistent ***subnormal temperature*** may be observed during convalescence from some of the protracted fevers, such as typhoid fever, pneumonia, etc.; in certain wasting diseases, such as starvation, cancer, etc. A sudden fall of the temperature to below the normal may result from hemorrhage from the lung, stomach, bowel, etc., or from perforation of the bowel, as in typhoid fever, or from shock from any cause, and it sometimes occurs in the crises in acute diseases, such as pneumonia.

Generally there is a definite relation between the pulse-rate and the temperature, the pulse, as a rule, increasing from eight to ten beats with each additional degree of temperature. Thus—

A temperature of	98° F.	generally corresponds	with a	pulse-rate of	60.
"	99°	"	"	"	70.
"	100°	"	"	"	80.
"	101°	"	"	"	90.
"	102°	"	"	"	100.
"	103°	"	"	"	110.
"	104°	"	"	"	120.
"	105°	"	"	"	130.
"	106°	"	"	"	140.

Taking the Body-temperature.—The temperature of the body is taken with a clinical thermometer (Fig. 7) in the mouth, the axilla, the groin, the vagina, or the rectum. The temperature of the axilla is about half a degree lower than that of the mouth. The temperature of the rectum and of the vagina is about half a degree higher than that of the mouth, because these cavities are constantly closed.

For convenience the temperature is generally taken in the mouth. The thermometer is washed in cold water and wiped dry, the mercury is shaken down to 95°, and the bulb of the thermometer is placed under the tongue and the lips kept closed for five minutes. The patient must be told not to open the lips while the temperature is being taken, or cold air will enter the mouth and the instrument will register a temperature lower than it should. Hot or cold drinks given immediately before taking a temperature in the mouth will make the recorded temperature higher or lower than it really is.

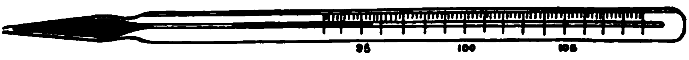

FIG. 7.—Clinical thermometer.

The temperature of very weak patients unable to keep the mouth closed, of unconscious and delirious patients, and of children, should be taken in the axilla or the rectum. The clothing is removed from under the arm, the armpit is dried from perspiration, the bulb of the thermometer is placed between the folds of the skin of the armpit, the elbow is bent, and the arm is held close to the side, the hand touching the opposite shoulder. The thermometer should remain in the axilla from seven to ten minutes. Before taking the temperature in the *rectum* the latter must be emptied if full, or the thermometer may become imbedded in the fecal matter and not come in contact with the mucous membrane. The thermometer is oiled and inserted for about 1½ inches, and is allowed to remain five minutes. The same length of time is allowed for taking the temperature in the vagina.

Should the same thermometer be used for several persons care must be exercised to insure that it does not carry disease germs from one to the other. In case of contagious disease it is well to have a separate thermometer for each patient. If this be impossible, and at all events at the termination of the disease, the thermometer must be sterilized by careful washing with soap and water, alcohol, and carbolic acid solution (1 : 20). The carbolic acid should be washed off with clean water before inserting the thermometer in the patient's mouth.

Fevers are said to end by *crisis* or by *lysis*. By crisis is understood a sudden fall of the temperature to or below the normal—which is usually accompanied by profuse perspiration, an increased flow of urine, and lessening of the pulse-rate and respiration-rate; by lysis, a gradual decline of the temperature, accompanied by a gradual fall of the pulse-rate and respiration-rate—occupying usually several days. Diseases of sudden onset usually terminate by crisis, such as pneumonia; diseases of slow onset usually terminate by lysis, such as typhoid fever. A sudden rise or fall must always be reported promptly, as some complication has probably set in, though with hysterical patients the temperature may rise to 103° F. or above, and fall without indicating anything serious. The same is also true of children. Very little things will often cause in a child a rise of temperature, which falls in a short time, so that a high temperature in a child is not so serious as in an adult.

Respiration.—The normal number of respirations in an adult is 16 to 18 per minute; we breathe once to four beats of the heart. In children of both sexes and in man the breathing is chiefly *abdominal*, and in women it is chiefly *thoracic*. When taking the respirations one should notice if they are regular or irregular, frequent, quiet, deep, shallow, thoracic, or abdominal. The respirations can be counted by watching the rise and fall of the chest after having taken the pulse, the fingers being still on the wrist. The most accurate way is to lay the hand lightly on the chest, but there is the danger of the patient's breathing slower or faster when he knows the respirations are being counted. It is always best to count the respirations when the patient is asleep, as they are then slower, but natural; excitement and exertion increase them. The respirations in

Infants are	from 30 to 35.
At the fifth year	" 20 to 25.
" " eighth year . . .	the same as those of an adult.

Cheyne-Stokes breathing is a peculiar form of rhythmic irregularity of the breathing. After a period of apnea in which the patient ceases to breathe, there occur slow, shallow respirations followed by others that progressively increase in depth and quickness until the acme is reached, after which the order of the respirations is reversed until the patient again ceases to breathe. The time that elapses between the cessations of breathing varies in most cases between thirty seconds and two minutes. Cheyne-Stokes breathing is encountered in certain diseases of the brain, such as apoplexy, tumor, tuberculous meningitis, in uremia, and in certain acute fevers. It is always a serious symptom, and is frequently followed by death of the patient.

The pulse, temperature, and respirations must accurately be recorded on paper or on a chart; when there is any doubt as to their correctness, a question-mark should be made, so that the attention of the attending physician will be drawn to the record. A patient must not see her temperature chart or even be informed of the run of her temperature, because if the fever continues the patient may become depressed. If unusual symptoms have developed, it is a good plan to leave a note downstairs for the doctor informing him.

Observation of Symptoms.—The accurate observation of symptoms in the cases which a nurse has under her care is of the utmost importance, so that she may know how to give the doctor a faithful and accurate account of everything that has happened since his last visit.

Position.—Notice must be taken of the position the patient assumes when lying in bed, because he always takes a position which gives him the most comfort. A patient ill with peritonitis lies on the back with the knees drawn up, to relax the muscles of the abdomen; one ill with pleurisy or asthma will breathe much easier when propped up. If one lung is affected, the patient will generally be found lying on the affected side, so that the sound lung can work better. Again, when a patient has been very ill, and has been lying on the back continually, it is a good sign when he turns over on the side.

Nausea and Vomiting.—Under all circumstances nausea and vomiting must be reported, and the following symptoms of the condition be noted: Is the patient continually nauseated without vomiting, or does the vomiting occur soon after taking medicine or nourishment? is the color of the ejected matter green, as it may be in any case where there is straining? does it contain blood, or particles like coffee-grounds, as in hemorrhage from the stomach? is it fecal in character, such as we get in intestinal obstruction? or are the contents of the stomach rejected without any distress or nausea?

Food.—A record should be kept of the exact amount of food the patient takes: Does he like or dislike it? is there a craving for food other than that he is taking? is there any difficulty in swallowing?

The Mouth.—The state of the mouth should be observed: Is there any pain? is the mouth hot? are the teeth decayed or unclean? The condition of the gums should also be examined: are they a normal red or very pale, swollen, bleeding, or rather blue?

The Tongue.—The condition of the tongue should be noted: Is it coated? if so, is the color light, the coat gray, dry, and brown, as seen in typhoid fever, or is the tongue red like beef, or of the so-called " strawberry tongue " or " raspberry tongue "—the uniformly red tongue with projecting papillæ, seen especially in scarlet fever after the coating has come off. Another condition of the tongue to be noticed is the trembling which accompanies typhoid and other fevers.

Pain.—In reporting pain, which is a condition that can neither be heard nor seen, the nurse can tell the doctor only what the patient says respecting the location of the pain and its character—throbbing, steady, or a shooting pain, and so on.

Facial Expression.—The expression of the face must carefully be watched: Is it anxious and pinched? does the patient seem to take an interest in what is going on? or is he dull and listless? Are there hot flushes of the face, paleness, blueness (commonly called "cyanosis," which is caused by insufficient oxygen in the blood)? or does the color come more in one cheek than in the other?

Cough and Expectoration.—The nature of the cough and expectoration must be determined: Is the cough hard and dry, without expectoration, or moist, loose, or hacking? does it tire the patient to cough? and does he cough more when lying upon his back than upon his side? and upon which side? or does the attack come on in paroxysms or fits of coughing? The expectoration may be frothy and watery, rusty, and adhere to the vessel; it may be the color of prune-juice, as is seen in gangrene of the lung, and have an offensive odor; it may also resemble pus; it may be streaked with blood, or be thick and yellow. The expectoration should always be saved for the doctor's inspection and its character and quantity noted. Line a sputum-cup (Fig. 87) with paper, which can be taken out and burned and the cup boiled. This should be done at least three times a day, especially in infectious diseases, such as pneumonia and consumption, in which the germs leave the body through the expectoration.

The Breath.—The character of the breath should be observed: Is its odor sweetish like chloroform? or has it a fetid odor caused by decayed teeth, dyspepsia, constipation, fetid bronchitis, gangrene of the lung, etc.?

Sleep must be noted: Is it quiet and restful? or does the patient sleep all night and awake very tired, entirely unrefreshed? at what time did she fall asleep, and how long did she sleep? was it in the first or the latter part of the night? or would she fall asleep and awake at intervals, and remain awake for a few minutes, an hour, or a few hours, then drop off to sleep again? was she restless when asleep? Notice whether the patient is hard to waken; is there twitching of the muscles during sleep, muttering, or any sign of delirium?

The character of the *breathing*: Was it quiet, deep, shallow, rapid, regular, irregular, or snoring (stertorous), with flapping out of both cheeks, or of one cheek more than the other? This condition must always be reported promptly, as it generally denotes serious disease of the brain.

Delirium.—Note the kind of delirium: is it quiet or busy; muttering; picking at the bed-clothes or at imaginary objects; or violent; if so, when is it most violent? Patients are very often quiet during the physician's visit; indeed, they seem to know the instant he enters the house. They are, as a rule, very cunning, and must not be left alone for a single moment, no matter how mild the delirium, as they may get out of bed and harm themselves, or may even jump out of the window. Terrible accidents and death have happened through delirious patients being left alone; hence the nurse should always remain near a delirious patient, no matter how slight and apparently insignificant the delirium, until some one can relieve her.

Chills.—In reporting a chill there should be given the time it occurred, how long it lasted, and the temperature, pulse, and respiration. As very many diseases and complications begin with a chill, it is necessary that a chill be reported at once. It may vary from a mere chilly feeling to a violent shivering or chattering of teeth; even the bed may be shaken. A chill may be divided into three stages: *first*, the cold, shivering stage; *second*, the hot stage, during which, if the temperature be taken, one will find it elevated, often in severe cases from 104° to 106° F. The second stage passes into the *third*, the stage of perspiration. For the first stage the nurse should apply heaters well covered, extra blankets, and give hot drinks of any kind—hot milk, tea, coffee, or cocoa; for the second she should gradually remove the heaters and extra covering; and for the third the patient should be wiped dry under the bedclothes with warm towels. If the perspiration is very profuse, the bed-linen and body-linen may be changed, but the nurse must be sure that the fresh linen is thoroughly aired and warmed before changing, thus guarding against another chill.

The Skin, etc.—The *color* of the skin must be noted, its pallor, blueness, or yellowness; any discoloration, hardness, or edema, which is a watery swelling caused by a collection of serum in the cellular tissue, and which pits on pressure. Note if the skin is hot and dry, or if there are hot flushes of the head and face, succeeded by creeping chills down the spine alone or over the whole body; also, the condition of the *nails:* are they discolored, blue, dry or brittle? Is there any discharge from the nose, the ears, or the eyes?

The Bowels.—The condition of the bowels must carefully be watched, noting if there is constipation or diarrhea; also the color of the movements. Black movements follow the use of certain medicines, such as bismuth, iron, charcoal, and tannin. When hemorrhage has taken place and the blood has been retained in the bowels, as sometimes occurs in typhoid fever, the movements are of a black or tarry color, but when the blood passes from the bowels immediately after the hemorrhage has occurred, the blood being very little if at all changed, the movements are of a red color. One should notice if the feces contain mucus or pus, undigested food, or even pills which may pass through the bowels without being dissolved. The patient may have diarrhea accompanied by the so-called "packed" feces—that is, the bowels are packed with small, round, hard lumps like marbles; the movements are then frequent and watery or contain these small lumps, and still the bowels may not be emptied. This condition must be reported, as well as whether the movements are attended with pain. Pain, tenderness, distention of the abdomen, and flatulence, also must be reported. The passage of gas by the rectum after an abdominal operation is a very good sign.

The Bladder: Urine.—The condition of the bladder must be recorded: is the normal amount of urine passed, or is the amount decreased or increased? is there retention, suppression, or a constant dribbling of urine (incontinence)? is there a constant desire to urinate, and is the urine passed with difficulty or pain? Anything abnormal in the color, odor, etc. of the contents of either bowels or bladder must always lead the nurse to save a specimen for inspection.

Unless otherwise ordered, a specimen of the *morning* urine should always be saved for examination, because the secretion has not generally been influenced by food or medicine. In many cases, however, the physician will desire a specimen of both the morning and the evening urine, or a specimen of the mixed twenty-four-hour urine. If necessary, the urine should be drawn with a glass catheter into a clean bottle or a tumbler, and be labelled with the name, date, quantity, and hour that it was drawn. The bottle must be covered tightly and placed in a cool place to avoid the changes caused by undue warmth.

The general points to be noted about the urine are the amount passed during the twenty-four hours; its odor, color, and appearance; whether perfectly clear or cloudy; the time the urine was passed, its reaction, and specific gravity. It must be noticed whether there is retention or suppression of urine; is the urine passed with pain or in very small quantities? does it contain blood or pus? To record the twenty-four-hours' amount, the excretion should be taken from 6 A. M. to 6 P. M. and from 6 P. M. to 6 A. M., and both amounts added together. When the bladder is very full it should be emptied slowly. In some cases it may be advisable to draw off only a portion of the urine at first, and the remainder later on.

Hiccough and the periods of its occurrence must be reported. It is a spasmodic contraction or movement of the diaphragm, and may come on after eating or drinking, on account of nervousness, or when there is great exhaustion following acute diseases. Sometimes hot drinks, or holding the breath for a few seconds or as long as possible, will relieve hiccough.

Menstruation.—Report menstruation, the amount and regularity: does pain come before, with, or after the flow begins? and does it last a few hours, one or two days, or does it last all through the period? Also report the locality and character of the pain; the character of the flow, whether it is of a normal color and odor, or scanty, dark, or pale, and, if clots come away with it, their number and size. If there is any leucorrhea, the character and quantity should be noted: is it profuse, thick, and stringy, or does it resemble the white of an egg? Leucorrhea is not a disease of itself, but is a symptom of many inflammatory and other diseases of the vagina and the lining membrane of the uterus.

2. Bodily Care of the Patient.

Changing the Clothing.—To change the nightdress and undershirt, they are loosened at the neck and wrists, and brought well up under the shoulders on one side of the patient; the arm is taken out of the soiled garments, and the corresponding clean sleeves are put on, and both sets of garments slipped over the head; this slips the soiled shirts off and the clean shirts on. The nurse now goes to the other side of the bed, removes the soiled clothing, and puts on the sleeves of the clean clothing, raising the patient slightly and pulling the clothing down smoothly at the back. It is generally well to have the body-linen open all the way down the front, and to button or tie it with tapes. When one side of the body is injured or paralyzed, the clothes should be taken off at the *sound side first*, and be put on at the *injured side first;* this will save the patient a good deal of unnecessary pain. Should one or both arms be fractured, the sleeves can be opened from the wrist to the neck and tapes be stitched on either side from 4 to 6 inches apart; the arm is then raised, the sleeve placed under, and the tapes tied.

Toilet of the Patient.—*The Hair.*—The hair must be combed every day, and be braided in two braids; if it is done up in a tight knot at the back of the head the patient will have a hard lump to lie on. If the hair is much matted through neglect, it must be gently combed, a little at one time, not jerked. The nurse will find it easier to comb upward. She must not tire herself and the patient by trying to comb it all at one time, but must do one part and leave the other until later in the day. If vermin are in the hair, tincture of larkspur, which is about the best exterminator to use, or carbolic acid (1 : 40), or kerosene oil should be rubbed into the hair, and the head be wrapped in a towel or cloth for two or three days. When the hair is dry, the nits can be destroyed by very thoroughly rubbing it with alcohol.

Washing the Hair.—For washing the hair of a bed-patient, the patient is brought to the edge of the bed; one end of a rubber sheet is pinned round his neck, and the rest of the rubber sheet is arranged like a trough, so as to carry the water into a drainage-pan on the floor. The head is covered with a thick lather of soap solution and every part of the scalp well rubbed. The soap is then carefully rinsed out and dried with a towel, followed by fanning.

The Mouth.—The patient's mouth should be attended to each day punctually. The mouth, to be kept perfectly clean, should be washed at least three times a day, and the teeth carefully brushed. Nothing is more refreshing in illness than a clean mouth and well-brushed teeth. If the patient has no tooth-brush, a piece of cotton wrapped around the end of a toothpick or a matchstick will serve to clean the teeth. A satisfactory mouth-wash may be made by placing 6 or 8 drops of pure alcohol in half a glass of water. Lime-water containing a few drops of rose-water is also efficient. A very agreeable wash consists of equal parts of tincture of orris, rose-water, and alcohol, flavored with a drop of oil of bitter almond. If the patient wears artificial teeth, they should be removed and cleansed two or three times a day.

The nails must be cleaned and trimmed if necessary. The hands and face should be bathed and the teeth brushed just before settling down for the night.

The Body.—The nurse should be careful to keep the bed-linen and body-linen perfectly dry and free from wrinkles, and the bed free from crumbs. She should guard against *bed-sores*, which are generally the result of careless nursing in allowing continued pressure upon the prominent parts of the body, except in cases such as those of fractured spine resulting in paralysis, in which the nerve-supply is injured, and in which bed-sores may form under the best of care. It must not be forgotten that a bed-sore is a disgrace to a nurse, except, of course, in these exceptional cases, and every good nurse will do all in her power to prevent it. She must not wait for redness to appear before beginning to bathe the back. Alcohol in any form, cologne, vinegar, or lemon-juice, may be used to harden the skin; and oxid of zinc, powdered laundry starch, corn-starch, baby-powder, bismuth, or borax may be used to powder the back. In the absence of alcohol and powder the sheets should be kept perfectly dry and free from crumbs and wrinkles, the parts be kept clean, and pressure be removed by pads and rings made of oakum, muslin, sheet-wadding or compress, and wound round with a bandage (Fig. 3). The patient's position should frequently be changed. If there is much moisture, the back may be rubbed with any kind of oil, sweet oil, mutton-tallow, lard, or even melted candle. There are some patients so very thin and emaciated that bed-sores form notwithstanding all the care that can be taken. Should one form, the pressure must be removed with a ring, the part painted with the white of an egg, which is the next best application to collodion and will exclude the air, or it should be dressed with oxid-of-zinc ointment. If the nurse is at a distance from an apothecary store, and has oxid-of-zinc powder and pure lard, four parts of the lard should be mixed with one part of powder; the regular ointment is prepared with benzoated lard, but the nurse may use common lard in an emergency.

Baths.—*Foot-bath.*—It is only the work of a few minutes to give a foot-bath: everything should be made ready, the upper bed-clothes then loosened at the foot of the bed, and across the lower part is spread a rubber, newspapers, or a soiled sheet, on which the foot-tub or a large basin is placed. The patient puts her feet in the tub, and the nurse draws the upper clothing around the limbs to protect them from cold. After the bath the nurse should see that the feet are properly dried; if they are cold, a well-covered hot-water bottle may be put to them.

Sponge-bath.—To give a sponge-bath to a patient in bed, the nurse first gets everything ready, and sees that the fresh clothing is thoroughly aired; the patient is then wrapped in a blanket, the clothing removed, and one part bathed at a time. She begins with the patient's face and neck, then the chest, abdomen, and arms, then the back, bathing the lower extremities last of all. The water should be changed at least three times, and the patient have the full benefit of the water as far as possible; the arms, the legs, and the feet placed in the basin and bathed thoroughly. Care must be taken not to expose more than one part at a time.

It will be found that some of the patients in private practice will take a sponge-bath every day, while others will take one only once a week. The nurse must go according to the inclinations of the patient, unless, of course, the physician should otherwise order.

Tub-bath.—When a tub-bath is ordered, and there is no bath-tub, a wash-tub will answer, the patient being seated in it and pailsful of water poured over the body.

The Bed-pan.—When inserting a bed-pan the patient should be requested to raise herself a little; the nurse then puts her hand under the patient's back and inserts the pan: if this method is followed, the pan will rub against the back of her hand, thus preventing the patient's back becoming irritated and a bed-sore forming. The nurse should raise the patient when removing the pan; it must not be dragged out: if the patient is very heavy, some one may be asked to assist in lifting her on and off the pan, which must first be warmed, to prevent chilling the patient, either by holding the pan over a register or by pouring over it warm water.

Feeding of the Patient.—*Serving the Meal.*—At meal-times the nurse should have the napkin and tray-cloth spotless, and the china, glassware, and silver of the best that the house affords; hot food should be served *hot*, not lukewarm, and cold food and cold drinks *cold*. It is better to serve too little than too much, and there should be a variety. Plenty of time should be allowed for the meal; the patient must not be hurried, so that the food can be thoroughly masticated and mixed with the digestive juices. The liquid must not be spilled, nor must a tumbler or cup be held at the rim where the patient is going to drink, but it should be held at the bottom. The tray must be removed when the meal is over, and if the patient has left anything to eat later, it should be put away, and on no account be left in the room. It is perhaps needless to add that the nurse's hands must be washed before preparing the food, also the hands of the patient before each meal.

Feeding Feeble Patients.—The principal thing to observe in feeding a feeble patient is to feed often and a little at a time. One will be astonished at the end of the day to find how much nourishment a patient has taken by giving it in small quantities every ten or fifteen minutes, gradually increasing the amount of the food and lengthening the intervals between the meals. Milk (which must be fresh and pure, and to which can be added the white of an egg), gruel, beef-tea, oyster-broth, raw oysters (which are very nourishing and easily digested), and eggnog, may all be given (see Dietary, p. 345); as the patient gains strength the food may be gradually changed to soft solids. When feeding an unconscious patient the nurse should pass the spoon containing the food far back into the mouth, empty it slowly, and then close the lips and nostrils; the patient will involuntarily swallow. Milk and brandy dropped on the tongue will be absorbed. When feeding an unconscious patient by the rectum (see p. 66) the enema should be given as high up into the intestine as possible, so that the fluid will be injected into the colon rather than into the rectum, because, according to some authorities, absorption goes on very slowly from the rectum, but very rapidly from the colon. Both the colon and the rectum must be free from feces before the enema is injected.

When supplying a patient with ice to suck, a piece of flannel or of cotton should be laid over the top of a tumbler, and a dent made in the centre in which to put the small pieces of ice; then as the ice melts the water drops into the tumbler, and the ice keeps much longer than it would if allowed to stand in the water.

Gavage and nasal feeding are described on pp. 74, 75.

Moving of the Patient.—The nurse should never attempt to *lift a helpless patient* alone: she should ask some one to help, nurse and assistant standing at the same side of the bed. The nurse places one arm under the neck of the patient; this brings the head resting on her arm, her hand being passed under the arm on the other side; the other hand and arm are passed under the middle of the back. The assistant passes one arm under the lower part of the back and the other under the knees, and both lift the patient toward the head of the bed. If a limb is injured, a second assistant will be needed to support the limb above and below the seat of injury.

A patient can be moved from one side of the bed to the other by the nurse placing one hand and arm down the patient's back, thus supporting the head and shoulders, and by passing her other hand over and slipping it under the upper part of the back; the upper part of the body can then be moved to the fresh side of the bed. The nurse's hands are then placed, one under the lower part of the back and the other under the knees, and the lower part of the body is lifted over. Or the under sheet can be secured to the mattress with safety-pins, the draw-sheet loosened, and the patient on the draw-sheet be drawn to the fresh side of the bed; the draw-sheet being then replaced. The best way is to have two beds of equal height, one for day and one for night, each having its own set of bedding; when changing the patient the beds are placed side by side, the nurse taking the sheet at the head, an assistant at the foot; the patient in this way is lifted to the fresh bed without jarring. If the patient is very heavy, an assistant will be needed at each corner, or if there are broken limbs, other assistants will be needed to support the limbs. If alone, the nurse should loosen the under sheet, gather in her hands the side nearest to her top and bottom, and draw the patient to the fresh bed. When two beds cannot be obtained, a sofa or a lounge may be used for the daytime. If the patient is in a large double bed, one half of it should be kept for the day, the other half for the night.

It needs two persons to carry a patient, and this is done by each grasping the forearms of her companion at the patient's back and under the knees, thus forming a chair, the patient resting an arm on the shoulder of each; but a much better way is to improvise a stretcher by rolling two long broom-handles or poles tightly in each side of the under sheet; in this way, with an assistant at the head and foot, the patient may be carried steadily to any part of the room or the house. The nurse must first make sure that the under sheet is good and stout, or she may have an accident by the sheet tearing and the patient falling.

To carry a baby, one arm is passed downward under the shoulders, with the head resting on the upper part of the arm; the other arm is passed under the knees, the lower part of the back resting on the hand. A child should never be carried with one arm around the neck, the other under the knees, thus allowing the body to sink between the arms and the head to hang down over the arm. The head must always be supported.

3. RELIEF OF FUNCTIONAL DISTURBANCES.

Enemas.—An enema is a liquid preparation for injection into the rectum, and is given to relieve constipation or to check diarrhea; to give nourishment, stimulants, or medicines when they cannot be retained by the stomach; to relieve the bowels of flatulence; and for other purposes. For all large enemas a Davidson or a fountain syringe should be used, and a hard-rubber syringe for small enemas. After being used the syringe must be cleansed by running hot soapsuds, and afterward hot water, through it, the outside wiped dry, and the instrument hung up to drain. If a hard-rubber syringe leaks and is not tight enough, filling it with water and leaving it full will cause the washer to swell and fit tightly; it always shrinks when not in use, and for this reason it is always well to soak rubber syringes every other day or so, that they may always be ready for use.

Evacuant Enema.—A *simple* enema, to relieve the bowels, consists of soapsuds, made with castile or brown soap; the amount of warm water varies from one to three pints. A sheet or rubber sheet should be placed under the patient, who should lie upon the left side with the knees drawn up, or upon the back. Both ends of the syringe should be put in the water, and the air expelled; the tube is oiled, and also the first finger of the nurse's left hand, which is passed under the clothes to the rectum, the finger acting as a guide. With the right hand the tube is inserted, as gently as possible, upward and slightly backward, following the natural curve of the rectum; the tube is held in place with the left hand and the injection slowly made with the right. If there is any difficulty in inserting the tube, it should be removed. No force is to be used; the resistance may be caused by the rectum being packed with fecal matter (which can be removed with the fingers), or obstructed by hemorrhoids (piles) or other obstacles.

Should the enema give pain to the patient, the nurse should rest a few moments until the pain has passed away; then the injection can generally be continued until all the fluid has been given. The tube is gently removed, and to the anus is placed a folded towel, which will apply pressure and help the patient to retain the enema a few minutes. The result must always be accurately reported. If there is no result from one enema, it is safe to repeat it in half an hour.

High Enema.—A high enema is an injection of fluid high up into the bowel, given generally in cases of obstinate constipation. There are needed a rectal tube and a soft-rubber catheter, or a piece of rubber tubing which is connected with the tube of the syringe and inserted up the rectum about 8 inches. If there is no rectal tube or rubber tubing, and the nurse has a fountain syringe, the hard-rubber or metal tip can be taken off, and the soft tubing will answer. If the syringe is a Davidson, the patient's head is lowered, the hips raised by placing a pillow under them, and the foot of the bed is also raised as high as possible on chairs. This position of the patient will send the flow higher up into the bowel, as will also the knee-chest position (Fig. 47; see p. 153). When the tubing is used there is always the possibility of its coiling up inside the rectum. Should the nurse suspect this, she should insert a finger, and if a coil is found, the tubing should be drawn out a little, then inserted again.

Colon Flushing; Abdominal Flushing.—Colon flushing is sometimes ordered for obstinate constipation in order to wash out the colon more thoroughly than is possible with the patient in the ordinary position for an enema. The patient is placed in the knee-chest position (see p. 153).

Continuous enteroclysis for shock and severe hemorrhage is described on p. 176.

Purgative Enemas.—An enema of *olive oil* or *castor oil* is to soften the feces. Six ounces of oil are warmed and injected as high as possible, this injection being followed in half an hour with an enema of 1 quart of soapsuds.

For a *glycerin* enema from ½ an ounce to 2 ounces of glycerin are mixed with the same amount of warm soapsuds. In many poor families the nurse may not find olive oil, castor oil, or glycerin, in which case either vaselin, butter, or lard melted and strained before injecting may be used.

If a *turpentine* enema is ordered, 1 ounce of turpentine added to 3 ounces of warm water, is given first, followed with an enema of 1 pint of soapsuds.

Rochelle salt and *Epsom salt* (sulfate of magnesium) are each given as a purgative enema, 1 ounce of the salt and 1 ounce of turpentine being mixed with 1 pint of warm soapsuds.

Molasses is an excellent purgative: from 2 to 10 ounces are mixed with 1 pint of soapsuds, or the molasses heated will readily pass through the syringe, the molasses enema being followed in half an hour with a soapsuds enema.

Enemata that have been used with success are—

1. Glycerin, 4 ounces,
   Turpentine, 1 ounce,
   Warm soapsuds, 8 ounces.
2. Molasses, 2 ounces,
   Glycerin, 4 ounces,
   Magnesium sulfate, 1 ounce,
   Turpentine, 1 ounce,
   Warm soapsuds, 8 ounces.
3. Rochelle salt, 2 ounces,
   Turpentine, 1 ounce,
   Warm soapsuds, 1 pint.

Astringent Enema.—A *starch-and-laudanum* enema is to check diarrhea. The starch is prepared as for laundry use, except that it should be thin enough to pass through the syringe; then the quantity to be used, usually 2½ or 3 ounces, is measured, and to it are added 30 drops of laudanum, this being the usual quantity ordered. The enema is to stand until lukewarm before being injected.

Bland Enemas.—*Barley*, *flaxseed*, *oatmeal*, and *Indian-meal* enemas are very soothing to an irritated membrane. They are each made thin enough to pass easily through the syringe, and must be strained before being injected.

Stimulating Enemas.—A *salt* enema is given for a stimulating effect: 1½ teaspoonfuls of common salt are dissolved in 1 quart of hot water. Other stimulating enemas are black coffee, half a pint (to be strained before injected); plain hot water; or whisky or brandy, 1 ounce added to 2 ounces of hot water. If there is no brandy or whisky at hand, but there is pure alcohol, only one-half this amount should be given, because the brandy and whisky are only half as strong as pure alcohol, but of about the same strength as the ordinary diluted alcohol, the wines, port and sherry, being still weaker. When, therefore, the nurse is directed to give 4 teaspoonfuls (half an ounce) of brandy or whisky, she may, in the absence of brandy and whisky, give the same amount of diluted alcohol, or 2 teaspoonfuls of pure alcohol, or 1 ounce of the wines.

If the pulse becomes less frequent, the temperature lower, the patient quieter, and an improvement in the general condition takes place, the nurse will know that the stimulants are doing good; but if the face becomes flushed, the restlessness increased, and the general condition does not improve, she will know that they are not doing good, and she should report their effect to the physician.

A *stimulating nutritive* enema may consist of—

Peptonized milk, 4 ounces,
Whisky, ½ ounce,
Tincture of digitalis, 10 or 15 minims,

the enema being injected high up into the bowel.

Rectal Feeding.—Nutritive enemas must be injected as high up into the intestine as possible, because the colon absorbs more quickly than the rectum, and if the enema is not given high it is very apt to remain in the lower bowel, and to be incompletely absorbed when the second one is given; as a result the second and part of the first enema may be rejected.

A *nutritive* enema consists of—

Peptonized milk, 4 ounces,
Whisky, ½ ounce,
White of one egg.

Or, Peptonized milk, 4 ounces,
and one egg.

Beef-tea, beef-juice, liquid foods, extracts of beef, cream, and oyster-broth may be given per rectum. Starch-water, pancreatic extract, sodium bicarbonate, and common salt (which hastens absorption) are often added to nutritive enemas. Stimulants are very irritating to the mucous membrane, and for this reason they should not be put into every enema, but only into every other one. The nurse should report whether the enema is or is not retained, also as to the presence of food in the movements.

A nutritive enema must not be given oftener than once in every three or four hours, and must not exceed from 4 to 6 ounces each time, unless differently ordered by the physician. A cleansing enema of warm water must be given first, to clean the bowel and to prevent irritation of the mucous membrane.

If the patient is very weak and does not retain the enema very well, it is a good plan to plug the bowel with soft linen or gauze, the end inserted having first been oiled. This measure will prevent the enema from being returned. The same result is sometimes attained by adding 10 drops of deodorized tincture of opium to each enema, and by making each enema small (less than 4 ounces) until the rectum becomes tolerant.

Douches.—A douche is a stream of water directed against a part or used to flush a cavity for purposes of cleanliness, stimulation, or to relieve inflammation or hemorrhage. Three of the commonest douches are the aural, the vaginal, and the rectal.

Vaginal Douche.—The vaginal douche is generally for cleansing purposes and to relieve inflammation. The surgical antiseptic douche is for cleansing purposes, from 1 to 3 quarts of warm water being used. The gynecologic hot douche is to relieve inflammation. The amount of water used is from 5 to 6 quarts, beginning with a temperature of 110° F., and gradually increasing it each day until it reaches 119° F. The temperature must always be tested with a bath-thermometer.

The Baker douche apparatus (Fig. 8) is the best to use, as the pail and pan each hold five quarts of water, and the patient can lie in the proper position for the fifteen minutes required for the water to run out of the pail.

When taking a douche the patient should lie on her back, with the hips raised by means of a pillow and the knees drawn up. In this position the water comes in contact with the whole vagina, and reaches high enough to influence the womb and ovaries, for the benefit of which it is usually given. If taken sitting over a vessel the water, reaching only as high as the nozzle, runs down by the side of the tube as fast as it runs in.

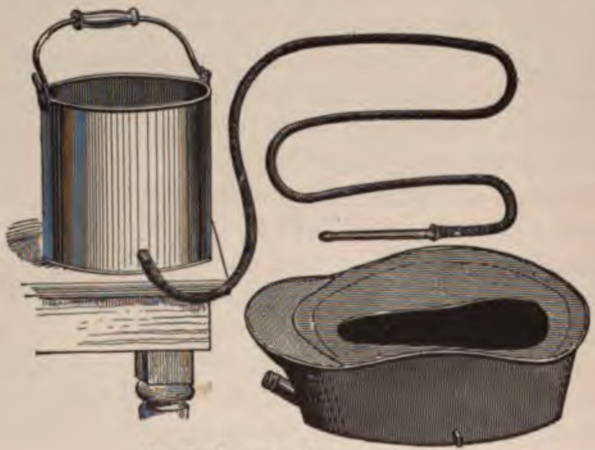

FIG. 8.—Apparatus for vaginal douche.

The fountain syringe, when used, must be hung high enough over the bed for it to take fifteen or twenty minutes for the water to run out of the syringe. Air must be expelled, the tube oiled, and the water must run warm before the tube is inserted into the vagina.

The vagina being a curved and not a straight canal, the tube must be inserted slightly downward, then upward. Again, the injection does not flow into the womb, as many think: if one will study a vaginal tube with the three small holes pierced in its sides, it will be seen that the injection is not intended to enter the womb, but is for the surrounding parts; if a few drops of water should accidentally enter the uterus, a severe attack of uterine colic might result. A hard-rubber tube is generally to be preferred, though one may use a glass nozzle, which can be rendered aseptic more thoroughly than one of any other material.

All persons have noticed how red and swollen the hands become on putting them into hot water, caused by the blood-vessels dilating and bringing more blood to the parts; then after a while the vessels contract and the blood is driven away, and the hands have a wrinkled appearance, commonly called "washerwoman's hands." A vaginal douche given to relieve inflammation has exactly the same effect. The hot water dilates the blood-vessels and brings more blood to the parts; then, on continuing the use of the hot water, the vessels contract, the blood is driven away from the parts, and the inflammation is subdued. The nurse will therefore see why she must be faithful in keeping up the douches as ordered, giving them at the proper time and temperature and length of time. A patient should lie quietly for half an hour after taking a douche; if she is taking only one a day, it may be best to give it at night, because the temporary weak feeling which sometimes follows a douche will be gone before morning. However, the nurse should go according to the orders given by the physician.

Many patients object to taking douches, and will neglect them on account of the inconvenience, especially if they live in apartments and there are children in the family; but this can be overcome by taking them in the bath-tub. Halfway across the bottom of the tub there is made to fit a piece of board, on which the patient can lie. Douches are easily taken in this way, which obviates a great deal of annoyance.

Antiseptic Douches.—Corrosive sublimate, carbolic acid, creolin, lysol, and boric acid are used for antiseptic douches. Corrosive sublimate and carbolic acid are very poisonous. Creolin is irritating, and to prevent absorption and irritation a plain water douche is often ordered to follow any of these antiseptics when a strong solution has been used.

Rectal Douche.—Rectal douches are for cleanliness and to relieve inflammation. Hot *rectal injections* to relieve inflammation are given with a fountain syringe and a rectal tube. The patient lies on her back with the knees drawn up, and a small pillow is placed under the hips to direct the flow upward. The physician will give directions as to the amount of water to be used, its temperature, etc.

Douches to the external genitals, to the perineum, or to the anus for the relief of inflammation or hemorrhoids may be given with the patient in the sitting position and with an ordinary rectal tube. The force of the stream and the temperature of the water are decided by the physician.

Catheterization.—Before catheterizing a patient great care must be taken in cleansing the hands, the catheter, and the parts, as there is danger of infecting the bladder, and causing septic poisoning by passing a dirty catheter or in neglecting to wash the hands and parts. If the catheter be of glass or of silver, it should be boiled five minutes, and put in a solution of carbolic acid (1 : 20). Before being used the catheter should be placed in a basin of sterile water or boric-acid solution.

If a gum-elastic or a rubber catheter is to be used, it should be soaked in 1 : 1000 corrosive sublimate for half an hour, then put into very hot water until needed. For women glass catheters are the best; they are easily rendered aseptic, and show whether they are or are not perfectly clean. Besides the catheter, which is taken to the bedside in a basin of very hot water, there are needed a basin of corrosive sublimate solution (1 : 1000), sterilized gauze or cotton, a vessel to receive the urine, and a lubricant of sterilized oil to render the entrance of the catheter as easy as possible. Gynecologists prefer that no lubricant should be used, and when one is necessary it should be a mixture of carbolic acid solution (1 : 40) and glycerin.

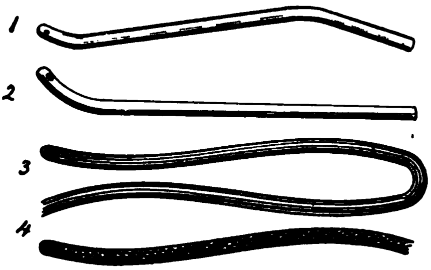

FIG. 9.—Catheters: 1, Glass; 2, silver; 3, soft rubber; 4, elastic (Macfarlane).

The Operation.—The patient lies on her back with the knees drawn up and separated, the upper clothing being divided over each knee to guard against unnecessary exposure. A douche-pan or bed-pan is placed on the bed close to the perineum. The labia are separated with the thumb and forefinger of one hand, and the parts washed with the corrosive solution, followed by sterile water or normal salt solution. The catheter is inserted into the urethra, the opening just above the vagina (Fig. 10). If there is any difficulty, the catheter should be withdrawn a little, and gently pointed a little downward or upward, to the right or to the left. If the flow should cease before enough urine has been drawn, the catheter is withdrawn a little or is inserted a little farther than before. Before removing the catheter a finger should be placed over its end to prevent any drops of urine wetting the bed. After the operation the parts are again washed, and the catheter boiled and placed in a bottle containing a solution of carbolic acid (1 : 20), unless the catheter is of rubber; carbolic acid ruins rubber.

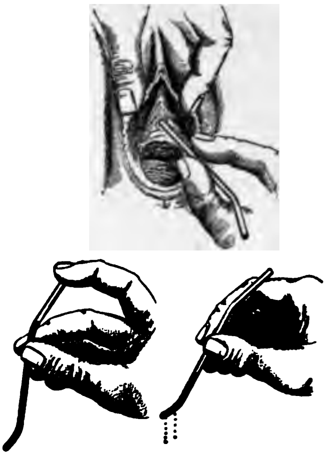

FIG. 10.—Catheterization of the bladder: *a*, Shows the catheter being introduced; *b*, the urine being retained in the catheter by placing the tip of the finger over the opening at the proximal end; *c*, shows the urine escaping from the catheter (Ashton).

A bladder very full of urine must be emptied gradually. *Cystitis* is due to many causes, one being the introduction of germs into the bladder by means of a dirty catheter, and the nurse who passes the catheter is always blamed.

Washing out the Bladder.—To wash out the bladder there are needed a fountain syringe, which must have boiling water and a disinfectant run through to cleanse it, and a glass catheter, which is cleansed in the same way as for catheterizing; the parts are also bathed. The patient is first catheterized; the catheter is then rinsed with boiling water and attached to the rubber tubing of the syringe which contains the ordered solution, its temperature being about 100° F. The solution must run warm before the catheter is inserted, and care must be exercised that no air gains access to the bladder. A pint of the solution is allowed to run gently into the bladder, the reservoir of the syringe being held just high enough (a foot or less) to cause the fluid to flow; then the tubing is disconnected from the catheter and the fluid is drawn off. If a double catheter is used, the tubing is not removed. This operation is repeated until the fluid returns clear.

Washing Out the Stomach (Lavage).—The stomach may be best washed out by means of a soft-rubber stomach-tube, to which a glass funnel may be attached, or one may use a special tube provided with a rubber funnel. In the absence of a stomach-tube, a fountain syringe may be utilized, the hard-rubber nozzle having been removed. The tube having been cleansed, the patient should be seated or raised up in bed and the tube passed far back into the throat, whereupon the patient is told to swallow. The tube is immediately grasped by the lower pharynx and the esophagus and carried downward, the nurse at the same time making gentle pressure downward. It is not necessary to oil the tube, the patient's saliva furnishing sufficient lubricant; the patient's head should not be directed backward, but rather forward; and the patient should be reassured while the tube is being passed, being asked to take a long breath, or to say "a," etc. The tube having reached the stomach, a pint or more of lukewarm water may be poured into the funnel, whereupon, if the funnel (while it still contains some water) is depressed below the level of the stomach, the water in the stomach will run out by siphonage (Fig. 12). The process should be repeated until the water returns clear. When the washing has been completed the tube should be removed quickly.

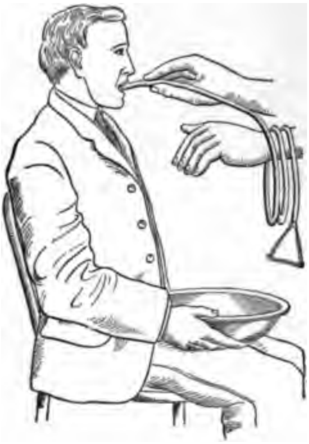

FIG. 11.—Position of the patient for introduction of stomach-tube; also method of passing tube into the mouth (Boston).

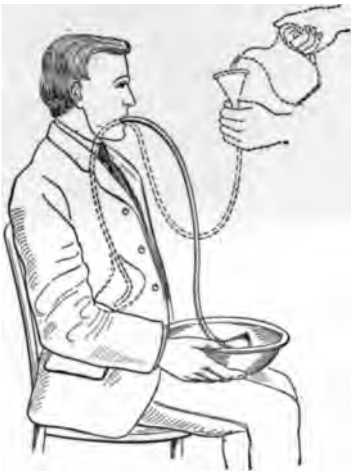

FIG. 12.—Method of inducing expulsion of gastric contents by siphonage (Boston).

Gavage is feeding by means of the stomach-tube, the food being in liquid form, such as milk, beef extracts, eggs, etc. The tube is introduced as in stomach washing; a few minutes are allowed to elapse, and then the food is slowly poured in. When the feeding is finished the tube is quickly but gently withdrawn.

Nasal feeding is sometimes needed after operations in the mouth or throat, or for insane or unconscious patients. It is performed by a funnel and tubing attached to a small soft-rubber catheter. The patient is in a sitting posture, with the head held level. The tube is introduced through the nostril, passed backward, and steadily pushed forward. Care must be taken not to get the tube into the trachea. To insure this the outer end of the tube is put into a glass of water, and if any air-bubbles appear, the tube should be removed at once, for it is in the trachea. After the tube is properly introduced and the patient is breathing comfortably, the food is introduced very slowly.

Test-meals are given in various digestive diseases to ascertain the condition of the gastric juice and stomach-contents. After a certain time has passed the stomach-contents are withdrawn by siphonage. The test-meal is usually preceded by washing out of the stomach. *Ewald's test-breakfast* consists of one or two rolls and eight ounces of water or weak tea without sugar or milk. *Boas' test-breakfast* consists of six ounces of strained oatmeal gruel. *Riegel and Leube's test-dinner* consists of specified quantities of beef soup, beef-steak, white bread, and water.

4. ADMINISTRATION OF MEDICINES.

The five ways of introducing medicine into the system are by the stomach, the rectum, the cellular tissue (subcutaneously), the skin (inunction), and the lungs (inhalations).

Rapidity of Absorption of Medicines.—The rapidity of absorption depends upon the parts to which the medicine is applied, the state of the circulation, the solubility of the medicine, and the power it has of passing rapidly through a living membrane. Absorption takes place more rapidly when the medicine is given subcutaneously, it taking only about five minutes for the drug to act, because it enters directly into the circulation; it is more slowly absorbed by the vessels of the mucous membrane of the stomach, and slower still by the intestines. Absorption through the lungs is rapid on account of their large blood-supply.

It takes about twenty minutes for a drug to act when given by the stomach, and about three-quarters of an hour when given by the rectum. It is absorbed more quickly if given on an empty stomach and if given in solution, because it then comes in contact with all parts of the mucous membrane of the stomach, and is not impeded by the presence of food. Pills and powders are absorbed more slowly; they require to be first dissolved. There are some medicines—for instance, iron and arsenic—which must be given after meals, so as to be diluted with the food, to avoid irritating the stomach.

Action of Medicines.—Sometimes a drug produces symptoms or affects the patient in a way entirely different from the ordinary: this is called an "idiosyncrasy," which means an individual peculiarity in regard to the action of certain drugs. Some drugs have what is called a "cumulative" action; that is, the excretion of the drug is so very slow that one dose is not entirely excreted from the body when the next one is given; the drug thus accumulates in the body, and after a while symptoms of poisoning may develop through cumulative action.

When patients have been taking a drug for some time the system becomes accustomed to it, so that after a while it takes a larger quantity to produce the desired result. This may continue until the habit of taking the drug is formed, when the patient not only craves it but thinks he cannot do without it.

Some medicines act as tonics, some as stimulants, and some as sedatives—heart and nerve stimulants, heart and nerve sedatives; others as narcotics, hypnotics, astringents, etc.

Tonics.—A tonic is a medicine which increases the strength and vigor, and gives tone to the whole body. There are many kinds of tonics, all of which act upon and improve the tone of the organs upon which they have a special effect.

Stimulants are to prevent or counteract some depressing effect, as in shock, collapse, in typhoid and other fevers, when the heart's action is depressed, and in debilitated conditions due to any cause. To *do good* in fever conditions they should strengthen and slow the pulse and respirations, lower the temperature, moisten the tongue, cool the skin, lessen delirium, and induce sleep. An opposite effect would show that the stimulants are doing harm instead of good, or at least that they are not producing the desired effect. This should be reported to the physician.

Sedatives lessen the force and frequency of the heart's action; they have a soothing influence on the system, and lessen pain to a certain extent.

Cerebral stimulants are drugs that increase the activity of the brain. They are also called exhilarants. *Cerebral sedatives* lower the activity of the brain. *Vascular stimulants* are substances that excite the action of the heart and cause dilatation of the peripheral vessels, and thus render the flow of blood through them more rapid. *Vascular sedatives* quiet the action of the heart and sometimes contract the vessels, lessening the flow of blood through them.

Narcotics are drugs that produce sleep. Some of them are at first excitants.

Precautions to be Observed in Handling and Administering Medicines.—Medicines must be kept out of the reach of patients, especially children and delirious patients; what is left of the medicine when it is discontinued must always be disposed of. The nurse should look at the label *three times* before giving the medicine—before measuring it, afterward, and when putting the bottle on its shelf; this rule must not be departed from, in view of the many sad mistakes that have been made. She should also be sure that the one who is to have charge of her patient while she is absent fully understands how to give the medicine.

Medicine-glasses (Fig. 14) and medicine-spoons (Fig. 16) must be thoroughly washed after being used, the nurse having separate ones for strong-smelling medicines and for oils. When ordered before meals, medicines should be given half an hour *before*, and those to be given after meals should be given about half an hour *after*, unless otherwise ordered. An unconscious patient must have the medicine dropped far back on the tongue, and it will

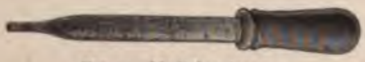

FIG. 13.—Medicine-dropper.

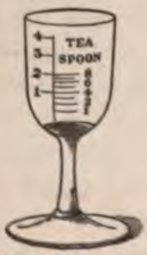

FIG. 14.—Medicine-glass.

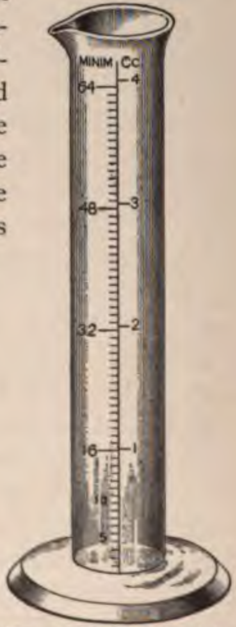

FIG. 15.—Double-scale minim-glass (natural size).

be absorbed, if not swallowed. Powders must not be given an unconscious patient by the mouth, as with a patient in this condition they may cause suffocation.

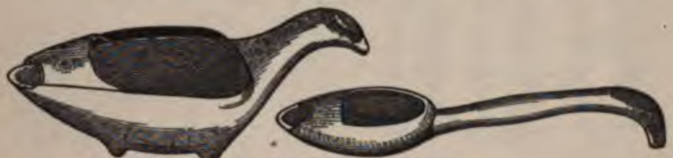

FIG. 16.—Medicine-spoons.

1. Medicines by the Mouth.—The nurse should always give minim doses when *minims* are ordered, and *drops* if drops are ordered, because of the marked difference between minims and drops—in some cases they are equal, in other cases two drops equal one minim, etc.

Drops may be given upon a piece of lump sugar or in a little water.

Powders may be given dry upon the tongue and be swallowed by drinking water, or they may be dissolved in water or hot milk. Powders that are unpleasant to take, such as quinin, are now enclosed in wafers (Fig. 17) or

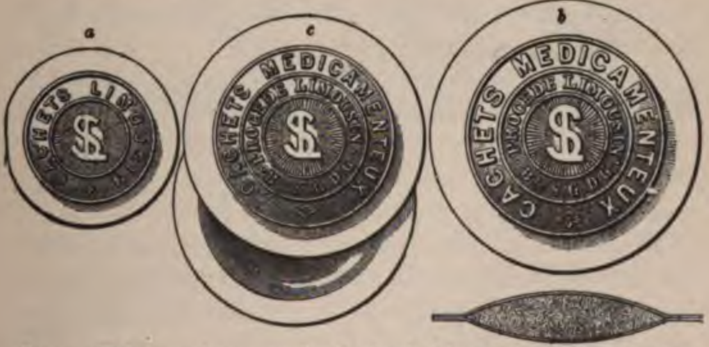

FIG. 17.—Wafers or cachets: *a*, small wafer closed; *b*, large wafer closed; *c*, showing two sections of the wafer (*b*); *d*, cross-section of a wafer filled.

in gelatin capsules (Fig. 18). The wafers, which are made of rice paper, may be obtained from most chemists, and are from 1½ to 1⅜ inches in diameter. One is moistened, and the powder is laid in its centre, another wafer is laid over the powder, and the two secured together by firm pressure. The wafer is then laid on the patient's tongue, and swallowed by drinking water. Or a spoon containing the wafer may be filled with water and the mass swallowed.

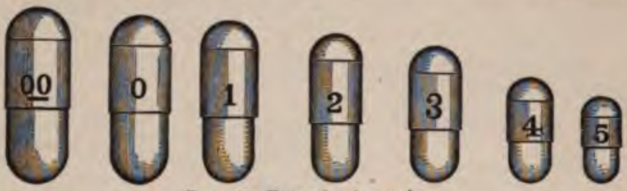

FIG. 18.—Empty hard capsules.

Pills should be placed at the back of the tongue and be swallowed with water. For children, who find it very hard to swallow a pill, the pill may be finely crushed and given with a little preserve, molasses, honey, or sugar. Powders may also be administered in this form.

Acids, which injure the teeth, should be taken through a glass tube and the mouth thoroughly rinsed afterward.

Oils may be taken in coffee, hot beef-tea, milk, ale, or brandy, or in lemon-juice or orange-juice. Oily medicines are sometimes given in gelatin capsules.

Purgatives must be given early in the day, so that the patient will not be disturbed at night, but *laxatives* should be given late in the evening; a result is then had the next morning.

Many medicines of unpleasant flavor are given in wafers and capsules.

Should a patient vomit directly after, or in five or ten *minutes after, taking a medicine by the mouth, or if the medicine is returned when given by rectum, it is safe to repeat the dose in from fifteen to twenty minutes.*

2. Medicines Administered per Rectum.—Medicines given by the rectum are in the form of suppositories or of enemas, which latter should be given high up in the bowel (see p. 61).

Suppositories.—Suppositories are drugs incorporated with cacao-butter and then made up into conical shapes (Fig. 19) for their convenient introduction into the rectum, the vagina, or the urethra. The finger is first oiled; then the suppository is inserted, and pushed well up in the rectum until it cannot be felt by the finger, a cloth being applied and pressed against the part. The patient is in the same position as that for giving an enema.

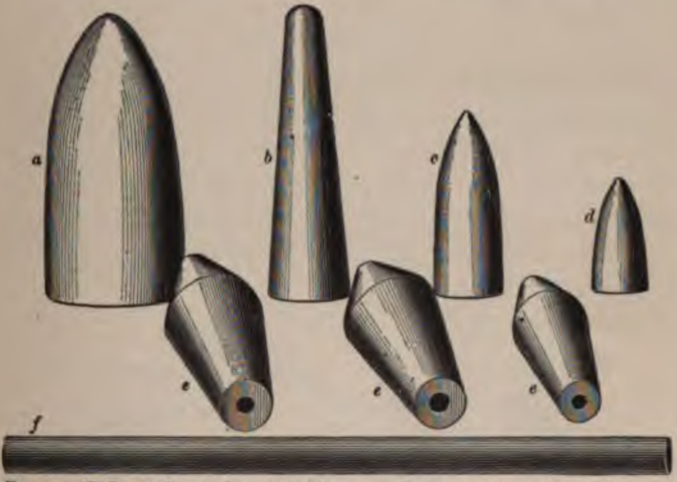

FIG. 19.—Different forms of suppositories: *a*, vaginal suppository; *b–e* rectal suppositories; *f*, urethral suppository (Thornton).

3. Hypodermatic Injection.—A hypodermatic or *subcutaneous* injection means the injecting of a medicine under the skin for a more rapid and certain effect than we would get if given by stomach or the rectum. The most convenient places for the injection are the outside of the arms, the forearms, the thighs, the chest, and the abdomen, the injection being made into the fleshy part, avoiding the large blood-vessels, nerves, and bone. The syringe (Fig. 20) is cleansed by drawing through it several times a 1 : 20 solution of carbolic acid, followed by very hot water. The needle is boiled in a large spoonful of water over a gas-flame. The preferable syringe is one that can be entirely sterilized. The syringe is loaded with the ordered solution, the needle is screwed on tightly, making sure that it does not leak at the junction, and the air is expelled.

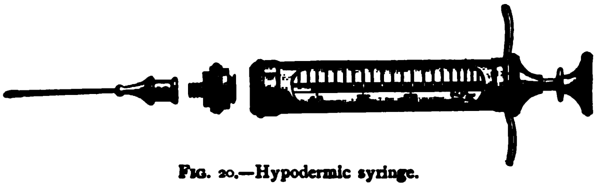

FIG. 20.—Hypodermic syringe.

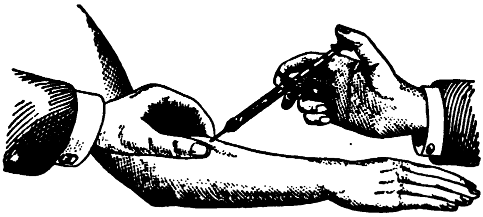

FIG. 21.—Method of giving a hypodermatic injection.

After cleansing the part a fold of skin is pinched up between the thumb and finger (Fig. 21), the needle quickly and slantingly inserted, then withdrawn slightly, and the fluid is slowly injected. A gentle friction over the part will distribute the fluid and aid the absorption. The needle is quickly removed, and the friction is kept up for a few moments. If a large quantity, half a drachm or more, is to be injected, it is better to inject deep in the muscle, to avoid irritation.

The syringe must afterward be thoroughly washed, by drawing through it the carbolic-acid solution and hot water, and the thin wire kept constantly in the needle to keep it clear. If not often used, the syringe should be soaked every few days in hot water to prevent the packing from shrinking. Abscesses following hypodermatic injections are generally caused by the syringe and needle not being thoroughly clean and the solution not fresh or pure. If the syringe is in constant use, it should be kept in a solution (1 : 20) of carbolic acid. Hypodermic syringes hold from 20 to 30 minims.

Intravenous injection, which is the injection of solutions into a vein, is only practised in cases of emergency, as, for instance, the injection of blood or of salt-solution when there has been an excessive hemorrhage.

4. Inunctions.—Inunction is the rubbing of an oil or an ointment into the skin for medicinal purposes, as in the application of mercury.

Mercurial Inunction.—When applying mercurial ointment, it must be rubbed on some part where the skin is thin, such as the inner sides of the thighs; absorption will then take place much quicker. The order of application differs somewhat. One way is for the patient to take a full bath the first evening, and put on fresh underclothing. The second evening a piece of ointment, about the size of a small nut, is with the hand rubbed in on the inner side of the right thigh. The third evening the left thigh is taken, then on successive evenings the left arm pit and the right are taken. In this way one part is taken each evening, and irritation on account of excessive friction on the same part is avoided. The rubbing should take about fifteen minutes, the ointment being thoroughly rubbed in. The application is to be omitted on the sixth evening, and on the seventh the patient takes a warm bath, changes the underclothing, and resumes treatment. Dr. W. H. Devine in his lectures on medicines gives the following order:

First evening,	the buttocks;
Second "	the thighs;
Third "	the side of the chest, but not the armpit;
Fourth "	the internal surface of the arms and forearms;
Fifth "	the back and abdomen;
Sixth "	omit treatment;
Seventh "	bathe, change underclothing, and resume treatment.

This method of applying mercury to the skin is resorted to when the stomach will not bear any mercurial, and also to obtain the general action of mercury. The mercury passes through the skin without producing any irritation, and is absorbed into the general circulation, where the general effects of the drug are produced.

The symptoms of mercurial poisoning are an increased amount of saliva, a fetid breath, swollen and spongy gums, with a bluish line along their margins, and a metallic taste in the mouth; any one of these symptoms must promptly be reported.

Children are not easily salivated, but when the breath becomes fetid the mercury must be stopped at once. When applied to children, it is a good plan to put the ointment on a piece of flannel and fasten the flannel to the part with a bandage. There is then no danger of the child getting the ointment over other parts of the body. Fresh ointment is put on the flannel every day, even if the latter does look soiled. The nurse should wash her hands thoroughly after each application, or absorption may take place through the skin of the hands.

5. **Inhalations.**—Inhalation is the administration of a drug in the form of a vapor, whose action is on the air-passages.

Moist Inhalation.—In the absence of a steam-inhaler the vaporized substances may be inhaled from a tea-pot or a coffee-pot standing over an oil or a spirit lamp by the bedside, the spout being directed toward the patient; or the solution may be put into a pitcher or a tin pan, covered with paper, which is perforated, and through which the patient can inhale the vapor. The patient must breathe quite naturally, taking in the vapor through the mouth, then closing the mouth, and letting it escape through the nose, breathing five or six times in succession before withdrawing the face for a few moments; then the patient begins again, and continues in the same way for the length of time ordered. If the patient is not in bed, he should inhale the vapor before going to bed; if done in the daytime, he should not go out for about an hour after. The inhalation of moist air may be obtained by means of kettles of boiling water in the room or by placing small pieces of unslaked lime in pans of water. Inhalations may also be given in a croup-tent (see p. 264).

Dry inhalations may be taken from a heated shovel or a plate. The drug is placed on the shovel, and a paper cone is made; one end of the cone is put over the drug, which is lighted, the vapors being inhaled from the narrow end of the cone and taken into the lungs.

5. GENERAL AND LOCAL EXTERNAL APPLICATIONS.

Baths.—*Temperature.*—The temperature of baths varies, and the water must be tested with a bath-thermometer (Fig. 22).

A hot bath varies from 98° to 110° F.
A warm " " 85° to 98° "
A tepid " " 70° to 85° "

A bath must never be given earlier than two hours after eating, for the reason that after eating the digestive organs, as a rule, are congested, owing to the increased activity with which they are obliged to do their work in the process of digestion.

Action of Baths.—A hot bath stimulates the nervous system through its action on the cutaneous nerves, which are connected, in a manner too varied and difficult for us to trace out, with the main nerves of the heart and with the respiratory and digestive systems. The nerves being already in a state of increased activity, a bath would lead to over-stimulation and might lead to shock, fainting, vomiting, etc. In simpler words, food increases the circulation, and a bath stimulates and excites the nervous system, hence one might get a shock through over-stimulation if a bath was given directly after a meal. A patient should never be left alone while in the bath-tub, as faintness may come on, the patient may lose consciousness, slip under the water, and be drowned.

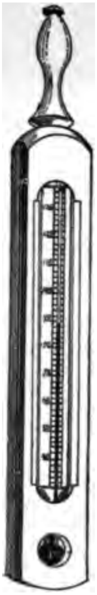

FIG. 22.—Bath-thermometer.

Vapor-baths also act as stimulants to the nervous system and induce perspiration. A *warm bath* acts as a sedative; it relieves inflammation, stupor, and delirium. The vessels of the surface of the body are dilated, but not so much as by the hot and vapor-baths; the blood is drawn from the brain, the activity of which is lessened, and the patient falls asleep. The warm and the hot *sitz-bath*, also the hot foot-bath, increase the circulation in the pelvic organs. They relieve retarded menstruation by dilating the arteries, so that the supply of blood is increased in the pelvic organs. Mustard, being a powerful stimulant, increases the effect of the hot bath. The amount used is 1½ teaspoonsful to 1 gallon of water.

Tepid and *cold baths* reduce inflammation and fever, and act as tonics and sedatives. The first effect of a cold bath is chilliness, through contraction of the blood-vessels; but later they relax, and the warm blood comes to the surface, and if the patient be rubbed, the circulation will be increased. To reduce the temperature the patient must have the full benefit of the bath. If in bed, each part must be bathed separately; each limb must be put into the water and well bathed by pouring the water over it, using a sponge or a wash-cloth; the other parts of the body must be well bathed with a very wet cloth, then mopped with towels, and allowed to dry. As above stated, cold water contracts the small blood-vessels; therefore, in sea-bathing or cold baths we apply cold water to the head to prevent a rush of blood to the brain, because, as the lower limbs are the first to be placed in the cold water, the blood-vessels of the legs are the first to contract, sending the blood upward.

It will be found that cold and tepid bathing will relieve *thirst*. When one is thirsty, it is a sign that the system is in need of water, though one feels the thirst only in the mouth and throat; but if the body is bathed, the skin will absorb the water, and the system will get enough water to satisfy its demands. Water when injected will also relieve thirst. After an abdominal operation, when nothing is given by the mouth for several hours, the bathing of the hands and face greatly relieves the extreme thirst. *Hunger*, which is felt in the stomach, may also be relieved otherwise than by the mouth. If nourishment be given by rectum, it will be absorbed by the intestines, and the hunger be alleviated to the same extent as though nourishment had been taken by mouth.

Cold tub-baths are much used in the treatment of fevers (*Brand bath*). The tub is half-filled with water at a temperature of 68° F. The patient, wrapped in a sheet, is gently lifted and gradually lowered into the water. While in the bath friction is applied to the limbs and the body, but not over the abdomen. Cold is applied to the head, which is kept raised. After the bath the patient is lifted out, laid in a bed on a large rubber sheet covered with a dry sheet, and mopped dry. Should the patient complain of persistent coldness, heat may be applied. The pulse and temperature must be taken before and after the bath. The duration of the bath is from ten to twenty minutes. In private houses, in the absence of an ordinary bath-tub, one of the several forms of portable bath-tubs now made will be found convenient and serviceable.

Cold sponge-baths are also employed for reducing the temperature in fever. The bed is protected by a rubber sheet, a bath blanket, or two bath towels tucked under the patient. The water should be brought to the bedside in a large pan or foot-tub, and should have a temperature of 65° F., which should be maintained by either renewing the water or adding ice. The sponging may be done with an old soft towel. Remove the bed covers and nightgown and place a towel across the loins, leaving the rest of the patient exposed. Place an ice-cap or a cold compress upon the head and a hot-water bag at the feet. The sponge should be wet, but not dripping, and the sponging done with long downward sweeping strokes. The patient is turned on his side in order to permit sponging of the back. He is then rolled in a dry sheet and dried with light friction.

Hot Baths.—Hot baths and *vapor-baths* are given to produce perspiration. When the kidneys are not working properly and the waste material is not carried away from the body, hot baths and vapor-baths dilate the superficial blood-vessels (those near the surface of the body), causing the patient to perspire profusely and a large amount of the waste material to be thus thrown off. If a tub-bath is ordered, the tub may partly be filled with warm water, the patient be lifted in, and then the temperature gradually increased by adding very hot water. At the end of fifteen minutes the patient is taken out, put to bed, and wrapped in blankets, which are tucked in very securely about the neck and body so that no air can enter. Cold cloths are applied to the head, and water is given to drink, because when there is a large quantity of water in the body the perspiration becomes much more profuse, and consequently the impurities thrown off are larger in amount. After the bath is completed the blankets are removed and the patient is sponged with warm water or with alcohol and water.

The Bed Bath.—When a bath is given in bed, the room should be sufficiently warm and all draughts must be avoided. Bring to the bedside two bath blankets, two towels, wash cloths, soap and other necessary toilet articles, a foot bath-tub half-filled with water at 110° F., and a pitcher of hot water for use in keeping the bath up to the necessary temperature. The patient is drawn to the side of the bed. As the bedclothes are turned down, one of the bath blankets is unfolded so as to cover the patient; the second blanket is then slipped under the patient, and the nightgown removed. The patient is then washed under the blanket, beginning with the face, ears, neck, and proceeding with the chest, arms, back, abdomen, legs, etc., each part being washed and dried before proceeding to the next. No part of the patient need be exposed.

Hot Foot-baths.—When giving hot foot-baths the nurse must remember to keep the temperature of the water even by adding hot water. The bedclothes at the foot of the bed are loosened, newspapers or a rubber cloth is spread across to prevent the bed from getting wet, the patient's knees are drawn up; the feet are placed in the tub, and the clothing is drawn around the limbs to prevent chilling. When taken out the feet are to be wiped dry, and care taken that they are made comfortably warm either by wrapping in a blanket or applying heaters.

Sitz-bath.—In the sitz-bath the water should be about 110° F. It can best be given in a tub specially designed for the purpose, the patient sitting in the tub so that only the thighs and hips to the waist-line are immersed. The patient and tub should be surrounded by a large blanket, and another blanket should be wrapped around the patient's legs and feet (Fig. 23).

Tepid or Neutral Bath.—The tepid bath is sometimes ordered in cases of nervous irritability. The water should be maintained at a temperature of 92° F. and the patient is kept immersed for from thirty minutes to three or four hours. A pillow covered with rubber is suspended at the head of the tub in order that the patient may be comfortable. The tub is covered with a bath blanket.

Continuous Bath.—The continuous bath is one in which the patient is kept immersed for from several hours to several days. It is employed in cases of severe burns or foul-smelling wounds. The stationary tub in the bathroom must be used, a mattress, pad, or folded blanket being put into the bottom of the tub. A rubber-covered pillow is adjusted at the head of the tub, and a rubber ring provided for the hips and also for the shoulders. The tub is covered with a rubber sheet, rubber side down. The water should come up to the neck and the required temperature should be maintained. Twice during the twenty-four hours the water should be drained off, the patient taken out to use the bed-pan, have dressing changed, etc. The tub should be thoroughly cleaned before refilling.

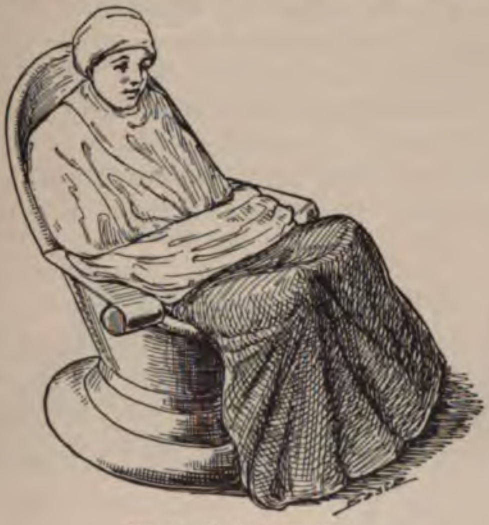

FIG. 23.—Sitz-bath (Bandler).

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Hot-vapor Bath.—To give a hot-vapor bath, a rubber cloth or an oilcloth and blanket are put on the bed (the patient being turned on one side, as is done in changing the bed); the patient's clothing is removed, and he is then wrapped snugly in the blanket, the upper clothing being supported by means of a cradle. The clothing should be well tucked in about the patient's neck and the sides of the bed, under the mattress, to prevent the escape of air, and another oilcloth put over all will make the covering much more air-tight. Under the clothing, at the foot of the bed, is inserted the spout of a kettle of boiling water, which can stand over a gas- or an oil-stove or a spirit lamp placed on a chair or a table, the whole being covered with a blanket to direct the steam under the blankets (Fig. 24). If the bed has a high footboard, the steam can be directed from one side of the foot of the bed. The nurse should guard against fire. The doctor will give orders as to the length of time the patient is to remain in the bath. He may order a thermometer to be placed in the bed, and

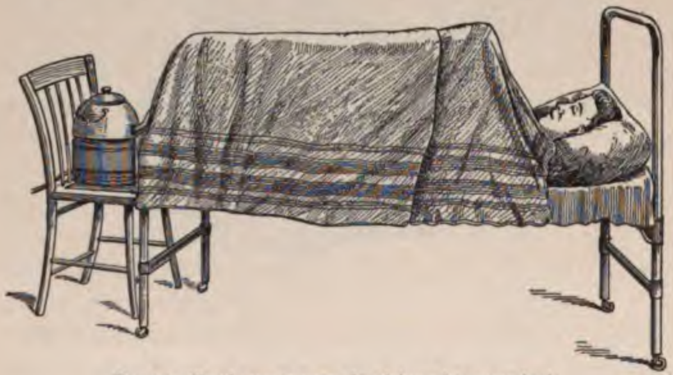
FIG. 24.—Simple arrangement for giving a hot-vapor bath.

the steam continued until the thermometer registers 120° F. or above, when the steam is stopped and the patient is treated as after the hot bath. As the water in the kettle boils down it must be replaced with *boiling* water, not with hot or cold water, or the steam will stop until the water boils again. Careful watch must be kept over the patient's pulse, which can be taken at the temples.

In the absence of an oil-stove or a spirit-lamp, very hot bricks, smoothing-irons, or plates may be wrapped in wet flannel or cloths; the hot bricks in contact with the wet cloths will make steam. The cloths must be placed about the patient on plates or in dishes to prevent wetting the bed, and care be taken not to burn the patient. If able to sit up, the patient can be seated on a cane-bottom chair, the clothing being removed, and surrounded with blankets or comfortables, which must be fastened from the neck down (Fig. 25). A kettle of boiling water over a spirit-lamp or an oil-stove, or a pan or pail of boiling water, is placed under the chair. The feet may be put into a pail of hot water to increase the effect, because the blood-vessels of the surface of the body are dilated, and remain so while the heat or vapor is continued; in this way the activity of the skin is increased, the pores of the skin are opened, and perspiration is produced. The nurse should be sure that the blankets or coverings are fastened closely around the patient's neck and about the chair to prevent

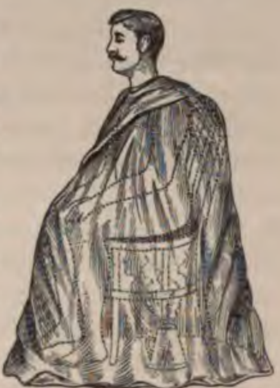

FIG. 25.—Arrangement of blankets in giving a hot-air bath to patient in sitting position. (Thornton).

the steam escaping. Cold is applied to the head, and water is given to drink, for the same reason as that given in describing the hot baths, and the after-treatment is the same.

Hot-air Bath.—The general details of giving a hot-air bath are the same as those for giving a hot-vapor bath, with the exception of the use of water to generate steam. The hot air is generated by means of an alcohol lamp or an oil lamp, and it is conveyed to the bed and beneath the clothes by means of an elbow of stove-pipe.

Acid Steam-bath.—An acid steam-bath, which is a valuable application in rheumatism, is given by preparing the patient in the usual manner, and placing around her very hot bricks wrapped in flannel which has been steeped in vinegar. The bath is continued for fifteen minutes, after which the body is wiped over with a towel wrung out of cold water, then thoroughly dried.

Shower-bath.—A shower-bath is given by directing the water from an ordinary watering-can, a pitcher, or a pail elevated a few feet above the patient. To *douche* the head the patient generally lies upon her stomach, her head hanging over the side of the bed, or the bath may be given her lying in bed. The patient lies on her side or back; the pillows are removed, the clothing loosened and pushed well down under the shoulders to prevent wetting; a pad is made with rubber cloth, oilcloth, or newspapers, by rolling the cloth at each side and at one end; the pad is put under the shoulders of the patient, her head resting on it, and the unrolled end hangs in a pail. The pad will prevent the water from running down the patient's back and the sides of the pad, and will also keep the bed dry. The water is poured upon the patient's head from a pitcher elevated a little distance above. After the douche the patient's head and shoulders are raised and wiped, the pad is slipped down into the pail, and the clothing and pillows are replaced.

Medicated Baths.—Baths containing bran, starch, sulphur, or bicarbonate of soda are used in certain skin diseases. In giving the *bran bath*, put a quart of bran into a bag and allow it to stay in the bath water for half an hour before the bath is given. For the *starch bath* dissolve half a pound of starch in cold water, add two quarts of hot water, and pour the mixture into the bath. For the *soda bath* dissolve bicarbonate of soda in the bath in the proportion of eight ounces of soda for each gallon of water. The *sulphur bath* is prepared by placing four ounces of potassium sulphid in a porcelain tub containing thirty gallons of water. It is ordered for scabies and other skin diseases.

Salt-water baths are given as tonics. Two or three pounds of sea-salt are dissolved in a tub half-full of water, the water being hot for the purpose of dissolving the salt. The patient is rubbed briskly while in the tub and dried by friction with towels.

Effervescent Baths.—The *Schott bath* or *Nauheim bath* and the *Carlsbad bath* may be made from the artificially prepared salts obtainable in this country. These salts are dissolved in bath water at about 70° F. These baths are given in cardiac disease and in nervous and rheumatic conditions. They are to be employed according to the physician's orders.

Sheet-bath (*Drip-sheet or Wet-sheet Rub*).—The sheet-bath, or drip-sheet, which is frequently applied in nervous diseases, is generally given in the following way: The patient, with clothing removed, stands in a tub which contains enough warm water to cover the feet to the ankles to prevent chilling (Fig. 26). A sheet wrung out of tepid water is thrown over the patient from behind, and covers the head and entire body. The patient is then gently rubbed (over the sheet) with both hands to produce friction and bring the blood to the surface. As the sheet becomes warm it can be re-wet by pouring water on it from a cup or a bowl. The doctor will always give directions as to the length of time the patient should be in the sheet. After being dried some physicians like the patient to be put to bed for a certain length of time, while others will leave orders for the patient to dress and go out for a short walk or to sit by an open window.

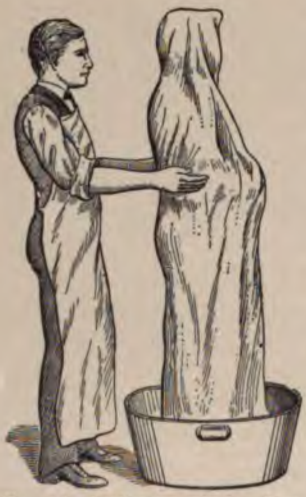
FIG. 26.—Application of the sheet-bath (drip-sheet).

Cold Douche.—The cold douche, or affusion, is given by wrapping the patient in a sheet, placing him in the bath-tub, and pouring pailsful of water over the body. The first pailful should be tepid, and be poured rather slowly, to prevent shock. Exhaustion must be watched for, and after the affusion the patient should be put to bed and wrapped in blankets. Another way, one often employed in nervous diseases, is to stand the patient in the bath-tub, and direct the water to the spine (*spinal douche*) or to the part to be treated by a piece of hose-pipe attached to the faucet. The *spinal douche* is used chiefly for its influence on the nervous system. In giving it a sheet should be wrapped over the patient's chest and around his legs, leaving the back exposed.

Scotch Douche.—The Scotch douche consists in the alternate application of hot and cold water. The hot application lasts from one to four minutes, and the cold from five to thirty seconds. The temperature of the hot application should begin at about 100° F. and gradually increased to from 110° to 120° F.

Cold Pack.—The cold pack is ordered for reducing the temperature in many acute diseases. A rubber, an oilcloth, or a newspaper is first put on the bed, and over this one or two blankets; then a sheet or a tablecloth which has been dipped in cold water and wrung out is placed on the blankets. The patient is laid upon the sheet (the patient's clothing having first been removed), and every surface of the body is covered by pressing the folds of the sheet down between the arms, body, and lower extremities. The sheet is tucked well in at the neck and feet; the blankets are then folded over and tucked evenly under the patient on both sides. The feet are lifted up and the corner ends of the sheets and blankets are tucked under them (Figs. 27 and 28). A wet towel or compress is applied to the head. The patient should be kept in the pack ten or fifteen minutes. It will be found that, besides lowering the temperature, the cold pack will relieve nervousness and induce sound sleep.

The *shower-pack* is given like the cold pack, except that when the sheet becomes warm from contact with the body, it is rewet by pouring on water from a sprinkler.

Hot Pack.—The hot pack is given in the same way as the cold pack, with the exception that the blanket, the sheets, or tablecloth is wrung out of boiling water by placing the blanket in a sheet, and pouring the boiling

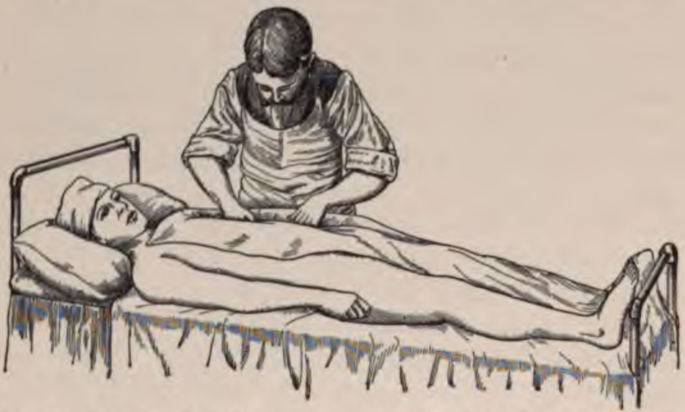

Fig. 27.—Application of the cold pack (pressing the sheet between the patient's arm and body).

water over them; two persons, each taking an end of the sheet, wring in opposite directions. More coverings are

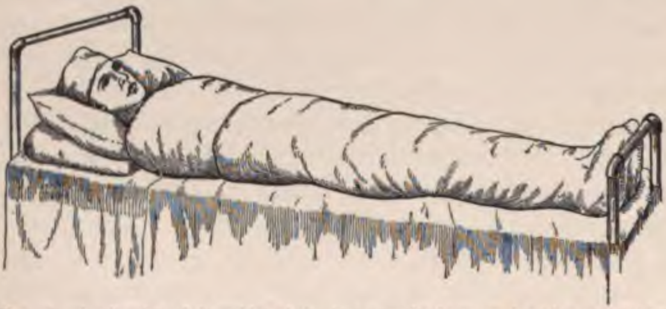

Fig. 28.—Application of the cold pack (patient completely covered, with wet towel on the head).

placed over the patients than in the cold pack. Should the nurse not have anything with which to prevent the mattress from getting wet, a table may be arranged with blanket and sheets; in the absence of a table the floor near the bed may be prepared. Towels, tablecloths, and old linen may be used where there are but few sheets. After the pack the sheets and blankets are removed, the patient is wiped dry with soft towels, the clothing is put on, heat is applied if necessary, and the pulse and temperature are taken. *Partial packs* are compresses applied to different parts of the body, and covered with a flannel or a cotton bandage to prevent the patient's clothing becoming damp.

INFLAMMATION.—Blood is made up of three parts: a watery, almost colorless fluid, called "plasma," and red and white corpuscles, which give to the blood its rich red color; there are more red corpuscles in the blood than white. The plasma contains a substance called "fibrin," which is an albuminoid, and which is the nourishing part of the blood. Blood in its normal condition is perfectly fluid, but when drawn from the body into a basin the fibrin causes the blood to coagulate or clot; the corpuscles, which are heavier than the plasma, sink to the bottom of the basin and are bound together by the fibrin, the whole forming a red semi-solid mass, covered with a clear yellowish liquid called "serum." The *clot* is the corpuscles, together with the fibrin, which has now left the plasma, and the *serum* is the plasma without the fibrin. It is thus seen that when the blood is fluid there are two parts—the plasma and corpuscles; when it is clotted or coagulated there are two parts—the serum and clot, the clot being made up of the corpuscles and fibrin, the serum consisting of the plasma without the fibrin.

Symptoms of Inflammation.—The four cardinal symptoms of inflammation are heat, redness, swelling, and pain: heat, due to abnormal tissue changes and probably increased heat production at the seat of the inflammation; redness, to the congestion and overfilling of the blood-vessels of the part; swelling, to the increased amount of blood in the part and the inflammatory exudate; and pain, to pressure on the end-organs of the sensory nerves exerted by the inflammatory exudate, as well as probably by the irritating properties of the products of the inflammation. Associated with the local increase of temperature at the site of the inflammation which, if superficial, we may perceive with the hand, there is an increase of the general body-temperature appreciable with the clinical thermometer.

Treatment of Inflammation.—If heat or cold is applied at the beginning of inflammation, the latter may subside; but should it continue, it may terminate in an abscess. The poultice or fomentation which is generally ordered softens and relaxes the skin and tissues, dilates the blood-vessels, quickens the circulation in the part, so that the fresh, pure blood can pass through, and the tight, painful feeling caused by the blood-pressure to the part is relieved. Ice contracts the capillaries, and thus lessens the amount of blood flowing to the part, and pus-formation may be prevented. When pus has formed poultices are again ordered to bring it up to the surface, bringing it *to a head*, as it is termed.

Bleeding.—*Leeching.*—Leeches are used in inflammation when it is necessary to remove a small quantity of blood. The part must be washed very clean, shaved if necessary, and be wiped dry; the leech is taken between the folds of a towel and applied. If it does not bite, a drop of blood extracted from a pricked finger will generally cause the leech immediately to bite. Another very successful way is to put the leech in a very small wineglass or cup filled with water, in which it should remain for a few minutes; the edge of the wineglass is then held to the part we wish the leech to bite, and it will come up out of the water and generally take hold; should it move around, it can be guided to the right spot. As a leech is always hot and uncomfortable after being shut up in a box, it should be put into water (the glass or cup having a perforated paper cover) until we are ready to use it; being then in its natural element, it becomes cool and good-natured.

After the leech has taken hold a piece of cotton should be slipped between it and the skin, because the movements of the leech give a very unpleasant sensation to the patient, and tend to make some patients nervous. A leech generally holds from 1 to 2 teaspoonfuls of blood, and when full it will drop off. If necessary to remove leeches after being on a certain length of time, a little salt sprinkled on their heads will make them drop off; they must not be pulled off, or they may leave their teeth in the wound and cause inflammation. The bleeding can further be encouraged by the application of hot poultices or fomentations. To stop the bleeding pressure is the best—a pad of graduated compress-cloth; or cold may be used—a small lump of ice. The patient must not be left for the night until the bleeding has stopped.

Leeches should not be applied over an artery, a vein, nor over loose cellular tissue where pressure cannot be applied, but, if possible, over a bony surface. It should also be known that the odor of tobacco, vinegar, or disinfectants in the room will often prevent a leech from biting. All cavities must be filled with cotton if leeches are to be applied near; should a leech get into one, it can be removed with an injection of salt and water. Leeches must always be disposed of after being used by putting them into a very strong solution of salt and water or into dry salt, and covering the vessel tightly. The nurse must be sure they are dead before throwing them away. The American leeches are best for children; they draw less blood. In case the patient is a child, the leech should be well covered, so that the child will not be frightened.

Cupping.—Cupping is to relieve pain and congestion, and to prevent absorption. Dry cupping draws the blood to the surface of, and wet cupping draws blood from, the body.

For *dry* cupping there will be needed two or three tumblers, or wine-glasses, or medicine-glasses; alcohol; a candle, a lamp, or a spirit-lamp; matches; towels. The part is washed with warm water, the glasses rinsed with hot water, and thoroughly dried. A few drops of alcohol are poured into a glass and shaken around; the edge of the glass is wet with the finger or is oiled, which prevents the fire reaching the patient's skin; the alcohol is then lighted with a match, and the glass turned over on the part, which must be an even surface. All this is done very quickly. The skin is seen to rise almost immediately in the interior of the glass, and the blood is drawn toward the surface. To remove the glass the skin is pressed down with the thumb or finger. The air will then enter the glass, which can be taken off. Care must be taken to avoid getting too much alcohol in the glass or getting the edges of the glass too hot.

Wet cupping is done with a scarificator. In addition to the things needed for the dry cupping, the nurse should prepare for the wetting operation some disinfectant and a dry dressing of gauze or compress. The part is washed with soap and water and a disinfectant; incisions are then made with the scarificator, and a dry cup is applied, which draws the blood. After the required amount has been drawn the cup is removed and the dressing is applied. Sometimes poultices are ordered to increase the effect. The nurse must have everything prepared for the physician, and stand ready to hand whatever he needs.

Fomentations.—*Moist heat* is applied to the body in the form of warm or hot baths, poultices, and fomentations (stupes). For a *hot-water* fomentation coarse flannel or two or three thicknesses of old blanket is the best. White flannel is preferable, as the dyes of colored flannels are apt to be poisonous. The flannel is placed in the middle of a towel, and both dipped in a basin of boiling water for a few moments, the ends of the towel being twisted in opposite directions until all the water is wrung out (Fig. 29); the fomentation is then carried to the bedside, the towel untwisted, and the flannel shaken out before applying, to let in the air; it will then retain the heat much longer. The fomentation is covered with dry flannel or towels and a piece of rubber cloth (both flannel and rubber being larger than the fomentation), and a bandage is applied to keep it in position. This procedure will retain the heat of the fomentation longer and also keep the patient dry. When renewing the fomentation the fresh stupe must always be ready before the cool one is removed.

Laudanum and *turpentine* stupes are prepared in the same way as the preceding: when the flannel has been wrung out of the water, from 15 to 20 drops of laudanum are sprinkled over it. For the turpentine stupe about 30 drops of turpentine are sprinkled over the flannel, or to 1 pint of boiling water there are added 3 teaspoonsful of turpentine; this solution is well mixed and the flannel put in, stirring all the time. The flannel is then taken out, wrung, and applied, the turpentine being then more evenly distributed over the flannel.

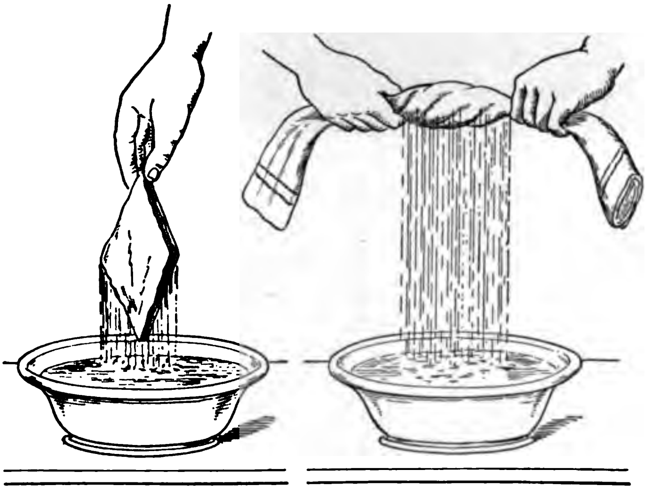

FIG. 29.—Method of wringing out a hot fomentation (Ashton).

Mustard fomentation consists of flannel wrung out of very hot (not boiling) water, about 1 pint, to which has been added 1 tablespoonful of mustard. It is preferable to make a paste of the mustard before adding it to the hot water; there will thus be less danger of it forming lumps. Mustard must not be added to *boiling* water, or the action of the volatile oil which the mustard contains, and to which it owes its value, will be destroyed.

Fomentations to the eyes and neck are changed every few minutes. Flannel, old cotton handkerchiefs, or sponges may be used, all of which can be put in boiling water and be pressed out with a lemon-squeezer, which is very handy for these small stupes.

When fomentations are applied to the breast, a hole should be cut in the flannel for the nipple.

When stupes are discontinued the part must be dried and covered with absorbent cotton, flannel, or a towel for a while, and afterward be bathed with alcohol, which will be a preventive against cold.

Poultices.—A *flaxseed-meal* poultice is made by rapidly stirring the meal little by little into boiling water. When the mixture is of the consistency of mush, stiff enough to drop away from the spoon, it is well beaten with the spoon to remove the lumps. This flaxseed paste is spread smoothly and evenly half an inch thick on a piece of old cotton, cheese-cloth, mosquito-netting, or even on paper, of the desired size, leaving a margin to turn in of about 1½ inches all around the poultice. Another layer of muslin is put over the face of the poultice; the edges are turned well under to prevent the flaxseed escaping. The poultice should be rolled in a towel and carried on a plate to the patient. When applying the poultice the nurse places her hand under it, the back of her hand resting on the part to which the poultice is to be applied, and slowly removes her hand; this will get the patient used to the heat, and is far better than suddenly putting a hot poultice on an already tender and sensitive skin, as repeated applications make the part very tender. This fact applies also to children: if once a child is frightened by too hot a poultice, the nurse will probably never be able to put on another. The poultice should be covered with flannel and rubber cloth or with newspapers, and be fastened with a bandage; the heat will thus be retained and the patient kept dry.

Large poultices should be changed every four hours, or if well covered they will last five or six hours; the smaller ones must be changed every one or two hours. A poultice must never be removed until a fresh one is made and ready to be applied; then the old poultice is removed and the part wiped dry with a piece of soft cotton, for the reason that the air acts as an irritant to a moist surface and causes an itching sensation. A poultice once used must never be reheated: it is valueless: hence poultices must be freshly made each time they are needed. If, for some reason, the nurse has to wait before applying a poultice, it can be kept hot by placing it between two plates over a pan of boiling water; if it is put in an oven, it will bake.

When applied for the removal of a slough, the poultices must be discontinued as soon as the slough is removed, as further poulticing will prevent the healing of the part by making the skin too moist and flabby.

Jacket-poultices.—A jacket-poultice, which is a poultice to encircle the whole chest, is readily made by taking four large pieces of muslin, old linen, etc., that will reach from the neck to the waist-line, and sloped out to fit under the arms; the poultice is then made in the usual way, one poultice being applied to the back and one to the chest, and fastened together over the shoulders and down the sides with safety-pins to keep them in position; then the usual coverings and bandages are applied. The jacket-poultice must not be renewed until the fresh poultice is ready to be applied; then the bandage is unpinned, the patient turned on his side, the cold poultice removed, the back wiped dry, and the fresh poultice and coverings applied; then the patient is turned on his back and the fresh poultice applied to the chest and fastened with safety-pins. It is an expert act to remove a poultice or a fomentation without awakening a sleeping patient: it can be done on almost any part of the body excepting the back, and even here it may be accomplished if the nurse has the confidence of her patient, who will wake up just enough to turn over and have the poultice renewed, and then drop off to sleep again.

A *bran-jacket* is made by placing bran between two pieces of muslin, which are cut the same as for the jacket-poultice, and stitching them all round and in different places after the manner of quilting, to keep the bran in place. The bran-jacket may be applied dry after heating it in an oven, or it may be placed in boiling water for a few minutes, then wrung out, laid on the part, and covered with rubber cloth or flannel and fastened with a bandage. When cold it is again wrung out of boiling water and reapplied. There should be two jackets made.

Bread Poultice.—Bread poultices are applied to very tender parts, and are milder than flaxseed, but they do not retain the heat as long. The poultice is made by stirring stale bread-crumbs into boiling water, and beating the mixture well to remove the lumps; then the water is drained off and fresh boiling water is added, which will remove the alum found in some bread; the second water is drained off, the poultice being then spread and applied.

Mustard Poultice.—A mustard poultice is made by adding to very hot water two parts of mustard (all the lumps being thoroughly dissolved) to four parts of flaxseed meal, and the poultice is spread and applied in the usual way. If the mustard be sprinkled over the flaxseed poultice, there is danger of burning the patient in patches; we avoid this by first dissolving the mustard in the water.

Charcoal Poultice.—A charcoal poultice, which is a very dirty poultice to prepare, is generally made with one part of charcoal and two parts of flaxseed meal, mixed and made in the usual way, a little additional charcoal being sprinkled over the surface of the poultice before applying. This poultice, which is ordered for wounds which have an offensive discharge, acts as a deodorant by absorbing the odor and promoting a healthy condition. Another method of making this poultice is to add ½ an ounce of charcoal to 4 ounces of flaxseed meal and bread-crumbs, mixing all together and making the application in the ordinary way.

Starch Poultice.—A starch poultice is made by taking ordinary laundry starch, mixing it with cold water, and then adding boiling water to make it into a thick paste. A starch poultice is used in skin diseases to relieve irritation. Very often belladonna or laudanum is sprinkled over the surface of both starch and flaxseed poultices to act on the nerves of the part and allay the pain. The effects of the drug must be watched for; this is very important, especially in the case of children.

Spice Poultice.—A spice poultice is made by placing in a bag equal parts of cloves, cayenne pepper, ginger, and cinnamon. The bag is sewed up and submerged in hot alcohol or in vinegar for a few moments, when it is wrung out and applied. Another way is to mix the spices with about 1 ounce of flour and enough hot alcohol to make a paste, and to spread this between two layers of muslin or linen. If the skin is tender, the proportions of cloves and pepper should be decreased. In the absence of the spices flannel may be wrung out of hot whisky or pure alcohol and applied to the part. The action of a spice poultice is that of a mild counter-irritant.

Yeast Poultice.—To make a yeast poultice, which is used as a stimulant to slow-healing wounds, take 3 ounces of fluid yeast and hot water, and stir in a quarter of a pound of either flour, oatmeal, flaxseed, or Indian meal. This mixture is heated, stirring it all the time until it is hot; or it is set by the fire until it rises; it is then spread on muslin the same as a flaxseed-meal poultice is prepared, and is applied while fermenting.

Slippery-elm Poultice.—A slippery-elm poultice is made by mixing slippery elm with very hot water; they should be mixed slowly or the poultice will become lumpy, and be well beaten before spreading it on the linen.

Hop Poultice.—A hop poultice may be made in the same manner as a bread poultice, or by filling a bag about half full with hops and wringing it out of boiling water when needed.

Digitalis Poultice.—A digitalis poultice is made by soaking digitalis leaves in warm water (two ounces of leaves to a pint of water). When the leaves are soft, the water is drained off and the leaves boiled. These are then spread as in an ordinary poultice. Digitalis poultices are applied to the loins for stimulating the action of the kidneys in nephritis.

Antiseptic Poultices.—*Corrosive sublimate* is used for antiseptic poultices, the strength varying from 1 : 5000 to 1 : 10,000. A towel, absorbent cotton, or gauze is wrung out of a hot solution, applied to the part, and covered with a dry towel, oil-silk, or paper, and a bandage. *Car-*

bolic acid is used for poultices in strengths varying from 1 : 60 to 1 : 100. Both carbolic acid and corrosive sublimate are very easily absorbed, and the general effects of the drugs must be watched for. *Creolin*, which is not so poisonous as the preceding, is used in strengths of from 2 to 5 per cent. For *boric-acid* poultices a 4 per cent. solution is generally used.

Green-soap Poultice.—A green-soap poultice is a thin layer of green soap spread over a pad of gauze, absorbent cotton, or a towel, and covered with a dry towel and a bandage.

Ice Poultice.—An ice poultice is to relieve hemorrhage, or pain due to neuralgia or inflammation, and is made of crushed ice, mixed with salt and sawdust, flaxseed, bran, or oatmeal, and sewed up tightly in rubber cloth, a coarse towel, or in paper, so as not to wet the patient and the bed.

It is not at all difficult to apply poultices or fomentations in a railway car: all one needs is a pint tin-cup, flaxseed meal, a spoon, paper, and a spirit lamp. In cases of sudden illness of an adult or a child attacked with croup, where fomentations will give great relief, hot water can generally be had, and handkerchiefs be wrung out of it and applied.

Dry Heat.—Dry heat is applied with hot bottles, bricks, plates, or smoothing-irons, well covered to prevent burning the patient. Hot flannel and bags filled with salt or bran or sand are used in aural surgery to relieve pain in the ear: the bags are made of old muslin or gauze, cut half-moon shape, and applied around the ear, never over it, as there would be danger of the heat causing the walls of the aural canal to swell; this would bring the walls together, and if the Eustachian tube were closed and there was an abscess in the middle ear, the nurse would have a sad state of affairs. Two bags will be needed—one being in the oven or in a farina-boiler heating, the other being on the patient. When using a hot-water bag the contained air must be expelled before putting in the stopper; the bag will then lie flat.

Application of Cold.—*Leiter Coil.*—Cold is applied to a part to relieve pain, to relieve inflammation, to arrest hemorrhage, and as a local anesthetic to freeze the tissues and allow slight operations to be performed painlessly; also as a stimulant, as when cold water is dashed on the face of a fainting person. It relieves pain by reducing the feeling of sensation, acting as an anesthetic; it relieves inflammation by contracting the blood-vessels, so that the amount of blood flowing to the inflamed part is considerably lessened and pus-formation is prevented.

The Leiter coil (Figs. 30, 31), which is used to apply continued cold to a part, is made of coils of pliable metal through which ice-water runs continually. Coils are made to fit the head, the ear, the abdomen, and different parts of the body. Two long pieces of rubber tubing are attached to the coil; the end of one tube being put in a vessel containing ice-water; the water runs to the coil, and after circulating through it the water passes out of the second tube into a pail on the floor to receive it (Fig. 31). The ice-water pail, which should

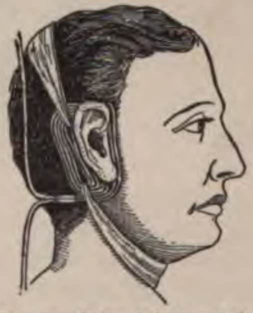

FIG. 30.—Leiter coil applied to the ear.

be a few feet above the patient's head, may stand on a hassock or a small chair placed on a table, or it may hang from the knob of one of the bedposts; the reservoir must not be too high or the water will run through the coil too rapidly. If the tubing is large, the second tube which conveys the water to the pail may be made smaller by tying it a little tightly at different parts along its length, thus preventing the water running out too rapidly. The supply-pail must be kept filled with water and ice. Should there be any difficulty in getting the water to run, or should the water stop running, by putting the end of the lower tube in the mouth and making slight suction the water will generally begin to circulate. These coils are fastened to the part by tapes passed through slits at each end and tied around the part. Should the patient complain of the intense

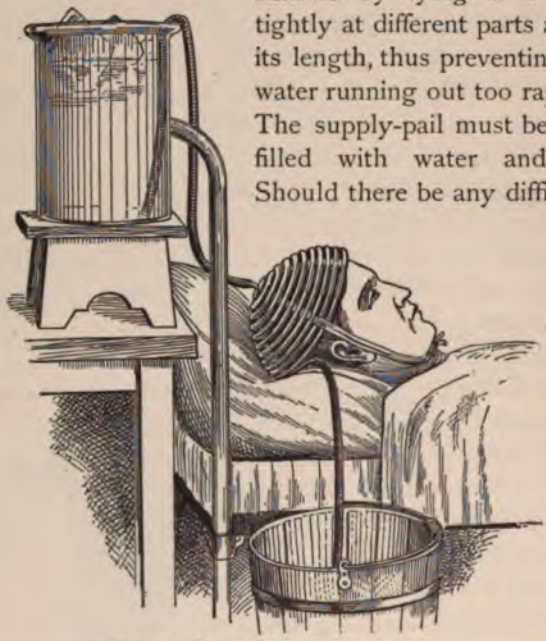

FIG. 31.—Leiter coil applied to the head.

cold, a piece of compress first put between the part and the coil will make it more bearable; this applies also to ice-bags.

Ice-bags.—Ice-bags must carefully be watched: if the nurse has only one ice-bag, ice-cold compresses must be applied to the part while the bag is being refilled. Ice melts rapidly, and if the bag remains on after the ice has melted, the water will rise to the temperature of the part to which it is applied and do much harm. When applying an ice-bag to the back or to any part of the body upon which the bag will lie, two things must be remembered: first, that there is air in the bag, and second, that the heat of the part to which it is applied very rapidly melts the ice in the upper portion of the bag, the water becomes warm, and the ice lying at the bottom of the bag does no good. To remove the water and air, one end of a piece of small rubber tube is placed in the mouth of the bag, the other end in a pail on the floor. In this way the water will be drained off as the ice melts, and continuous cold will be applied.

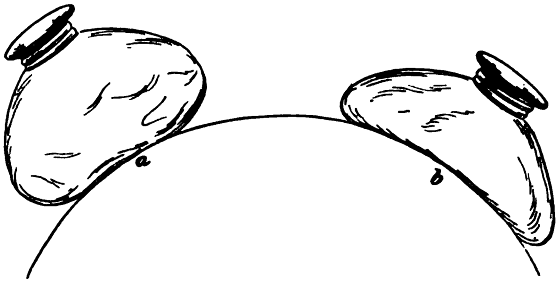

FIG. 32.—Incorrect (*a*) and correct method (*b*) of applying an ice-bag (Ashton). Note that in illustration *a* the bag is distended with air and does not adjust itself to the surface of the body. In illustration *b* the air has been expelled before screwing on the cap and the bag hugs the parts closely.

To fill an ice-bag the ice is wrapped in a coarse cloth or a towel and crushed with a hammer, or the ice may be broken into small pieces with a strong pin or a darning-needle. Fill the bag half full, and press out the air before sealing it.

An *ice-cap* is a double rubber cap into which crushed ice is placed through an aperture at the top. It is provided with strings for fastening it under the chin.

When cold is applied to the head and spine or to the head alone, heat is generally applied to the feet and other parts of the body to avoid any depressing effect on the circulation.

Counter-irritation.—Counter-irritants are substances used to influence reflexly a part more or less removed from the point of application of the counter-irritant. They act probably by exciting the sensory nerve-endings in the skin, whence, through reflex action, vascular, nutritional, and secretory changes are effected in adjoining and subjacent parts of the body. For instance, a deep-seated inflammation may be relieved by the dilatation of the superficial blood-vessels and the flow of blood to the site of the counter-irritation, with a consequent lessening of the congestion, pain, and swelling of the inflamed area. There are three classes of counter-irritants: Those of the first class are known as *rubefacients* —substances that produce temporary redness and congestion of the skin by distending the small superficial blood-vessels. Mustard poultices, mustard fomentations, mustard plasters, turpentine stupes, hot water, friction, and the like, are examples of counter-irritants of this class. Counter-irritants of the second class are known as *vesicants* or *blisters*. They cause marked inflammation of the skin with the exudation of serum from the blood-vessels between the epidermis and the true skin. Iodin and cantharides (Spanish-fly blister) are examples of this class of counter-irritants. In many respects no sharp dividing line can be drawn between counter-irritants of the first and of the second class—prolonged action of those of the first class may be followed by vesication or blistering, whereas a mild application of cantharides, but especially of iodin, may be followed by only a more or less temporary congestion of the skin. Counter-irritants of the third class are known as *pustulants*—substances that affect certain isolated parts of the skin, such as the orifices of the sweat glands, and give rise to the formation of pustules. Croton oil is a well-known example of a counter-irritant of this class.

Counter-irritants are generally applied a little distance from the inflamed parts, for the reason that if the vessels of these parts are dilated more blood is brought to them. For instance, in cases of meningitis, severe headaches, and other affections of the head a blister is sometimes applied to the nape of the neck: the blood-vessels here being dilated, more blood is brought to them, and the head is relieved. It is the same when a hot-water or a mustard foot-bath is given to relieve headache: it causes greater dilatation of the blood-vessels in the limbs, so that more blood is drawn to them, thus relieving the head. If the blister was applied directly over or too near the inflamed part, there would be danger of the accumulation of blood, or the "congestion," increasing and doing more harm than good.

The reader may have had an inflamed finger, and have noticed that when the hand was hanging down by the side the throbbing and pain were increased; this was due to the blood rushing down to the hand, thus putting more pressure upon the finger; but on raising the hand the pain was relieved, because the pressure of blood became less. It is for this reason that *rest* is ordered for inflammation. The part is kept quiet and elevated; the arterial blood is thus prevented from rushing to the part, and the venous blood can better return to the heart.

Mustard Plaster.—A mustard plaster is made of mustard and flour, equal parts, or of all mustard, mixed into a paste with warm water and spread between two layers of muslin or soft linen rag. When mixed with flour the action of the mustard is slower and it is not so liable to blister. The plaster is covered and left on from ten to twenty minutes. When it is removed a little vaselin is rubbed over the part, which is covered with a soft cloth. While the plaster remains on the patient a corner should be raised from time to time, to see that it is not blistering; especially is this necessary with unconscious and paralyzed patients. For children four parts of flour are mixed with one part of mustard; when the skin is red the plaster is removed and a flaxseed-meal poultice applied. The action is slower, but blistering is prevented. White of egg and mustard make also a non-blistering plaster.

Tincture of Iodin.—Tincture of iodin is a counter-irritant; it is painted over the part with a swab or a camel's hair brush, a little of the tincture being poured into a cup or a saucer. Two coatings will be sufficient. The iodin stains the skin a dark yellowish-brown color, and may cause a painful, smarting sensation, which can be relieved with alcohol or ammonia, though some patients prefer olive oil. The swab or brush must never be put into the bottle after being used on the patient. There should be a separate brush for each patient.

Croton Oil.—Croton oil is a powerful counter-irritant; 3 or 4 drops are sprinkled on a small piece of flannel and rubbed into the skin; this gives rise to a vesicular and pustular eruption.

Cantharis Blistering.—A blister is raised with either cantharidal plaster (Spanish-fly), cantharidal cerate (blistering cerate), or cantharidal collodion. The part must be washed, and shaved if necessary, and be wiped perfectly dry; the *plaster* is cut the desired size and shape (Fig. 33) and applied. If the *cerate* is used, it should be spread on a piece of cotton and be kept in place with a bandage. If adhesive plaster is used to keep either of these plasters in place, there will be no room for the blister to rise, and it will cause a dragging pain. Before applying the cantharidal *collodion* the parts to be blis-

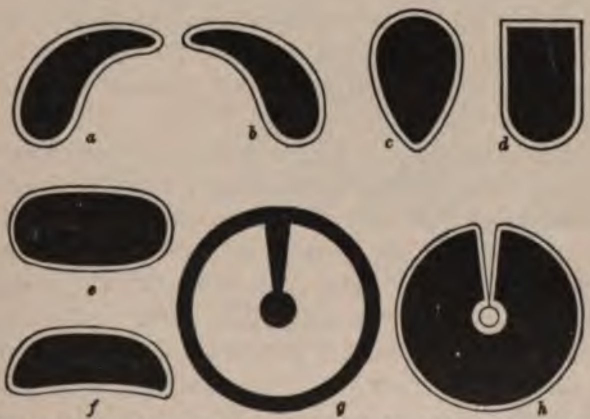

FIG. 33.—Shapes of plasters: *a*, for left ear; *b*, for right ear; *c*, for chest; *d*, for shoulder; *e*, for back; *f*, for side; *g*, pattern for breast-plate; *h*, plaster for breast.

tered must be outlined with vaselin or with oil, which will prevent spreading of the blistering solution. The collodion, which is painted on with a swab or a brush, causes an itching sensation when first applied; patients must be told of this to guard against scratching.

The action of the cantharis must be watched. It is a powerful irritant and affects the kidneys, and sometimes causes painful urination or suppression of urine. For children and very weak persons the plaster should be kept on just long enough to start the blister, then a poultice be applied to make the blister rise, otherwise a slough may be formed. It generally takes from four to eight hours for a blister to rise (collodion acts more quickly). If at the end of that time the blister has not risen, the application of a flaxseed poultice will hasten this result.

Should the physician leave to the nurse the time of applying the irritant, she should apply it during the early part of the day, so that the blister will rise before evening. If applied in the evening, the patient is kept awake through the night with the pain caused by the rising of the blister. When the blister has risen, the lower part should be snipped with a pair of scissors, and the fluid discharged on a towel or a piece of cotton to prevent irritation of the skin, and then be dressed with vaselin. It must be remembered that the cuticle, or skin, of the blister must not be removed without orders; the skin is only removed when the blister is to be kept open. In this case it is called a "perpetual" blister, and is dressed with some irritating ointment. If the physician wishes the fluid to be reabsorbed, care must be taken that the skin is not broken.

Chloroform Blistering.—A ready way to produce a blister is to pour a few drops of chloroform or of strong ammonia into a watch-crystal, which is then placed over the part; the blister will rapidly rise.

A blister must not be produced over a bony part, because here the circulation is less active, and a slough may be the result.

Guaiacol.—A mixture of guaiacol and glycerin is applied very thin by means of a camel's-hair brush. The part should then be covered with absorbent cotton or gauze and a bandage applied.

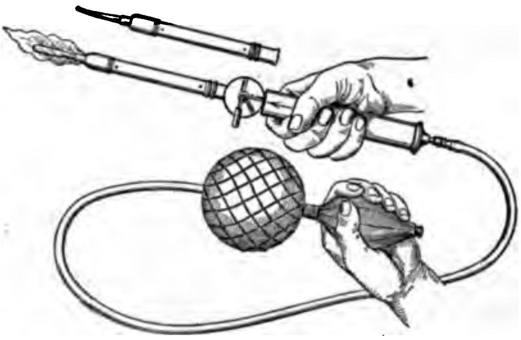

FIG. 34.—Paquelin's cautery. Note that the benzene is contained in the handle of the apparatus (W. E. Ashton).

Cauterization.—Cauterization is the scarring of the skin by heated metal. It is usually performed by the Paquelin cautery, an instrument shown in Fig. 34. The instrument is used by the doctor, never by the nurse. The nurse, however, prepares the site for the application by scrubbing the skin with soapy water, rinsing with clean water, and applying carbolic acid or boracic acid solution.

Ironing.—Counter-irritation for relief of pain in lumbago, etc., is done by a heated flat-iron, a thick paper being placed over the part and the iron passed lightly over this until the skin becomes reddened.

Massage.—Massage consists of a series of movements which give to the muscles and the whole system strength and vigor, and in a certain sense takes the place of active exercise, but it is entirely different from rubbing. The work is done by the ball of the thumb, the fingers, and the palm of the hand. Some of the movements are *stroking* with the finger-tips, followed by deep stroking; *kneading*, which is grasping a muscle or group of muscles between both hands or between the thumb and finger, and pressing, rolling, and squeezing it, beginning at the extremity of a limb and working upward. Then there is the deeper kneading, as in treating an arm or limb, followed by rolling or fulling, which is a to-and-fro movement with the limb between the palms of the hands, the limb being rolled back and forth; *deep pressure* with the knuckles, used when a part is either hard or flabby and we want to reach a deep-seated nerve; *twisting* of the muscles, followed by vibration, which stimulates the capillary circulation; *percussion*, which is striking or beating the surface with the palm of the hand (clapping) or the side of the hand with the fingers held very loosely (whipping), and with the fingers held stiffly, which is true percussion. All this is followed with light friction. On the abdomen the kneading is begun at the ascending colon, then is continued on the transverse and descending colon. The tissues are *rolled*, not rubbed; a firm grasp of the muscles should be taken, and a considerable amount of force be used, but not too much.

Repose of touch should be cultivated, and work be done from the wrists, or the movements will be jerky instead of being even. Tender parts should be gone lightly over at first: later on more force may be used. It will be found, if done skilfully (and skill can only be acquired by constant practice), that massage is a nerve sedative, relieves neuralgia and also some chronic affections. In order that the student may have a perfect knowledge of massage and its application, it is absolutely necessary that she should first take a complete course in anatomy, and familiarize herself with the bones, muscles, and organs of the body, their form and location.

Liniments.—A liniment is a thin, liquid ointment, consisting of a solution of a medicinal substance in an oily excipient. It is intended for external use, to relieve pain, or to produce local stimulation. It must be applied to the skin with friction until the part is entirely dry. A cloth must not be used, or the effect will not be so good.

Lotions.—A lotion is a medicinal solution intended for external use. It may be evaporating or non-evaporating; it is used externally for cooling purposes and for the relief of pain. Where *evaporating* lotions, such as alcohol, vinegar, or camphor, are used, one single thickness of cotton, saturated with the selected lotion, is applied, and left uncovered. Lotions must be changed often, and not be allowed to become warm or dry. *Non-evaporating* lotions are applied with two or three thicknesses of compress wrung out of the ordered solution and covered with rubber tissue or cloth, and a bandage to keep it in position.

Gargles, Sprays, etc.—To gargle the throat the solution is taken into the mouth, the head being thrown back and moved from side to side. The fluid in this way is brought in contact with the back part and sides of the throat, and is more beneficial than by causing the fluid to bubble up in the throat. If the gargle is an acid, the mouth must afterward be rinsed with water, so that the teeth will not be injured. *Sprays* are much better than gargles when the throat is ulcerated; a patient can seldom gargle thoroughly. A spray will reach all the parts. When spraying or painting the throat the nurse should stand a little to one side, so that the patient will not cough in her face. When painting, the rule is to paint from down *up*, because the patient will always gag; by beginning to paint at the bottom of the throat one can paint upward, bringing with one sweep the brush or cotton-stick out of the mouth. A roll of paper answers nicely for blowing *powder* into the throat; the paper roll is placed back in the throat with the powder inside, and is blown in by the nurse or is inspired by the patient. For esthetic and other reasons, however, a powder-blower is much to be preferred.

All instruments used in the throat must be very clean and warm, also be free from odor, so as not to nauseate the patient. The back part of the throat is connected with the Eustachian tube, which is about 1½ inches long, and passes from the ear to the back of the throat, and which in order to hear perfectly should be kept open; but when one has a *cold in the throat* the mucous membrane which lines the back of the throat and this little tube is swollen, and a temporary deafness results. Gargling the throat with very hot water is very beneficial when the soreness is first felt, and will very often prevent its extension. The *nose* also calls for special attention; its passages must be kept open and clean. We breathe through the nose, and by so doing the cold air becomes warmed in passing through the nasal cavities to the lungs, and dry air is moistened; but if we breathe through the mouth, as when the nostrils are inflamed, the cold air goes directly to the lungs, the mouth and throat become dry, and the throat becomes sore. Certain diseases of the nose call for special treatment and special directions. When spraying the nose it should be sprayed down on a level with the roof of the mouth, and not up to the roof of the nose; this mistake is often made. The patient must be instructed to close the mouth and draw the fluid into the throat, then to cough it out; if this is not done, the fluid will run out the nose as the spray is applied.

Eye-drops.—To put a drop in the *eye* the patient should look up, the lower lid be drawn down, and the drop be put in with a dropper or a quill on the center of the *lower lid;* it will then flow over the surface of the eye to the duct near the nose. A mistake often made is that of putting drops in the eye in the inner corner, near the nose.

The interior of the eyelids and the front of the eyeball are covered with a mucous membrane called the "conjunctiva," and in the orbit on the outer side of the eyeball is a gland called the "lachrymal gland," which secretes the tears and keeps the eye moist. The tears pass over the surface of the eyeball, and those not used are carried off into the nose by a small canal called the "lachrymal duct," which passes down from the orbit into the nose. This secretion of tears is going on day and night, but we do not notice it until either the conjunctiva is irritated by a foreign body in the eye or by strong vapors, or when we are affected by strong emotional feelings of sorrow or of happiness, when the secretion of tears by the lachrymal gland exceeds the drainage-power of the duct and they overflow on the face. When we try not to cry the tears pass down through the duct to the nose, and pass out through the nose; then we get the "blowing of the nose," commonly thus called when people try not to cry. So we see that the gland which secretes the tears is at the outer part of the eye, and the duct which removes them from the eye is in the inner corner. It must now be clear why a drop should be put in the centre of the lower lid, so that the solution will pass over the surface of the eye to the duct next the nose.

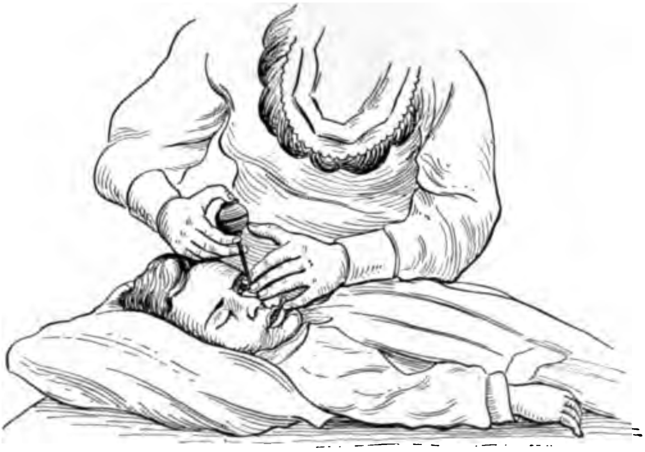

Fig. 35.—Method of syringing the eye (after McCombs).

Ointment should also be applied in the center of the lower lid, either with a small spatula used for the purpose, with the handle of a small teaspoon, or with anything that has a smooth, flat, narrow surface.

A medicine-dropper, or soft-rubber ear-syringe, may be used to *syringe the eye*, which must be done from the inner to the outer corner (Fig. 35).

Syringing the ear must not be done with too much force or the drum-membrane may be ruptured. A fountain syringe (Fig. 36) is the best to use, as with it we get a continuous flow, and injection of air into the ear is prevented; still, an ordinary Davidson syringe will answer if the nurse has not a fountain or a hard-rubber syringe.

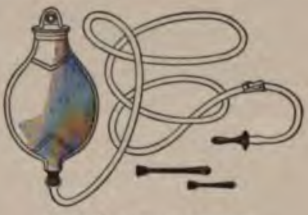

Fig. 36.—Fountain syringe.

The necessary things for syringing the ear are a fountain or a hard-rubber syringe, a bowl for the water to be used (unless the nurse uses a fountain syringe), a bowl for the return flow, a towel for the patient's shoulders, and one for the assistant. The syringe is filled, the air expelled, and the tip of the ear is pulled backward and

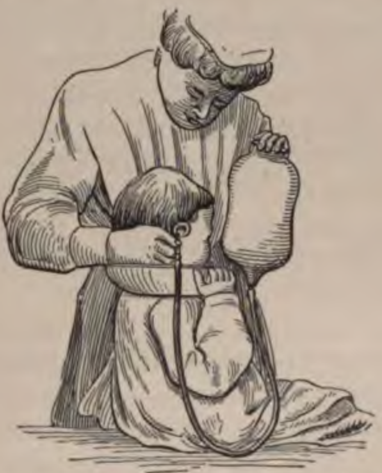

Fig. 37.—Method of syringing ear with fountain syringe. The lower end of bag should be above the level of the auditory canal (after McCombs).

upward to straighten the canal, which is then syringed gently. The patient may hold the small bowl beneath the ear, but if not able an assistant will be necessary. Warm water is used for ordinary syringing.

For an *ear-douche* to relieve inflammation the temperature of the water is about 100° F. The douche is continued for fifteen or twenty minutes, unless the patient should complain of dizziness, which is often due to the water being directed to one spot or to too much force being used. When syringing for the removal of discharge, the nozzle of the syringe should be moved around, directing the stream against the sides of the auditory canal and not in the central axis. This procedure is also necessary when syringing to remove a hard collection of wax. By syringing thus the water will pass between the sides of the canal and the plug of wax, and, reaching the space behind, will bring out the wax with the return current.

Many persons syringe their own ears, which operation is easily done if one has a fountain syringe. The head is held over a bowl; one hand is passed over the back of the head to hold the auricle and straighten out the canal, while the other hand directs the stream of water into the ear.

An *ear-bath*, which may be of plain water or of water to which is added a small quantity of sodium bicarbonate, is used to soften an accumulation of wax that cannot be removed by syringing. The head is laid on the unaffected side, the tip of the ear is pulled slightly backward and upward to straighten the auditory canal, and the ordered solution is poured into, and remains in, the ear about fifteen minutes, when the mass will be softened sufficiently to be removed by syringing. A piece of cotton should be worn in the ear for a while after the operation to prevent chilling.

No liquids should be dropped into the ear without direct orders from a specialist. Laudanum, oil, glycerin, lard, and other applications that we hear of as ear-drops are all injurious, though they may alleviate the pain for the instant. Pain should be relieved by heat until an aural specialist can be consulted. The nurse is justified in putting oil into the ear only when it is invaded by an insect; then the oil must be warmed and poured in, and the insect will float to the top and fall out. If no oil is at hand, warm water will do—the insect will thus be drowned. Beans and other things likely to swell with water must not be interfered with, but a surgeon should at once be consulted. The ears must not be picked with pins; the drum-membrane is often perforated through this habit. Before washing the patient's head it is always well to put cotton in the ears, the ends of the pledgets having first been dipped in oil or in vaselin. If cotton alone is used, the water will soak through; but as water and oil do not mix, the water cannot get beyond the oil into the ears.

II. NURSING IN OBSTETRIC CASES.

Pregnancy: Signs and Symptoms.—The *probable signs* of pregnancy are—stoppage of menstruation, morning sickness (though with some women this is entirely absent or may come on regularly every evening), enlargement of the abdomen at the end of the third month, a sense of weight and fulness in the breasts, and darkening of the skin around the nipples. Still, these symptoms are uncertain. Nurses having experience in gynecologic wards know that the abdomen may be enlarged by a tumor, and that the blue color of the vagina, due to dilatation of the veins from congestion of the circulation, may be caused also by the presence of a tumor. Menstruation may cease from cold and from anemia; or a change of climate and of living will many times stop the menstrual flow for a few months, as will also an attack of any of the acute fevers, until the nervous system regains its normal condition. In some womb diseases the breasts have increased in size and contained milk, and the nausea and vomiting may be caused by some disease of the stomach. None of these symptoms, taken singly, is a positive sign of pregnancy.

The *positive signs* of pregnancy are the fetal pulse, which can be heard about the sixth month, and the fetal movements, which are felt between the fourth and fifth months. There are other signs, but they belong to the obstetrician.

Duration of Pregnancy.—The average *length of pregnancy* is two hundred and eighty days—nine calendar months, or ten lunar months.

Conception and Date of Confinement.—Conception may take place just before or very soon after a menstruation. We begin to count the *probable date of confinement* from the last menstruation. The way to date is to find out on what day the last menstruation began, count forward nine months or three months backward, and add seven days, which is the probable duration of the menstruation; when the date of the last menstruation is uncertain, add four and a half months to the date of quickening, which will give the probable date of confinement. There is always a possibility of a mistake, because conception may take place just before or soon after a menstrual period; that is, if conception did not occur soon after a menstruation, it probably took place just before the date of the next occurring period.

As pregnancy advances the abdomen becomes larger (Fig. 38). About the fourth month the abdomen begins to enlarge, and the top of the womb can be felt above the brim of the pelvis; at the fifth month it is halfway to the navel; at the sixth month it is on a level with the navel; at the seventh month it is between the navel and the point of the breast-bone; at the eighth month it reaches the sternum; and at the ninth month it gradually

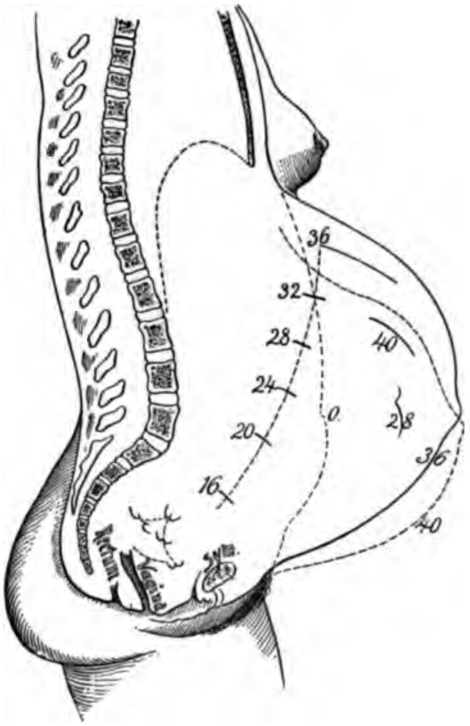

Fig. 38.—Abdominal enlargement of pregnancy, showing varying heights of the fundus marked in weeks (Schaefer).

sinks into the abdomen, the pressure upon the organs within the chest is removed, and the woman breathes easier, though pressure at the same time is now put upon the lower organs, and it is difficult for her to walk. At the end of nine months the child is fully developed and labor takes place.

The Fetus.—The fetus receives its nourishment from the mother through the blood-vessels of the placenta, which, when fully formed, consists of two portions, a fetal and maternal. These two portions are connected so closely that waste material from the child is carried to the mother, and nourishment from the mother is carried to the child very easily without there being any direct blood-communication between the mother and fetus; the blood is carried from the placenta to the fetus by the umbilical vein, and the two umbilical arteries carry the waste substance from the fetus to the mother. The *umbilical cord* is connected with the navel of the fetus and the placenta. When fully developed the cord is about 20 inches long, and is covered with a gelatinous substance called "Wharton's jelly," which acts as a protective. The cord contains two arteries and one vein. The arteries twist around the vein, which carries the blood from the placenta to the fetus, and it is returned by the arteries. After a while the fetus is enclosed in a membrane which gradually fills with what is called the "amniotic fluid," which is water containing albumin and certain salts. In this bag of waters the child floats, it being thus preserved from all injury. The bag of waters at the beginning of labor acts also as a wedge to dilate the mouth of the womb, and usually when it is fully dilated the membranes give way and the waters escape.

Fetal Movements.—The movements of the fetus are felt between the fourth and the fifth month, and they generally occur two weeks later in a woman who has been pregnant before. The supposition that the child—or "fetus," as it is called while in the womb—has no life until between the fourth and the fifth month, when its movements are felt by the mother, is entirely wrong. The child is living from the moment of conception, but its movements are not felt because, up to the first four and a half months, the womb, which is not sensitive, is not large enough to come in contact with the inner surface of the abdominal wall, which is fully endowed with sensibility.

Disorders of Pregnancy.—Some of the disorders which may arise during pregnancy are—nausea, vomiting, constipation, diarrhea, leucorrhea, retention or incontinence of urine, salivation, swelling of the veins of the legs and thighs, swelling of the external parts, heartburn, neuralgia, etc. The constipation is due to the pressure of the enlarged uterus on the intestines. The diarrhea may be caused by the constipation, as there is then the packed feces. Pressure on the bladder is the cause of the constant desire to urinate, as the pressure interferes with the distention of the bladder and there is little room for the urine to accumulate. The pressure of the enlarged womb on the nerves of the pelvis is said by some to be the cause of the nausea and vomiting. This disorder disappears about the fourth month, when the womb rises out of the pelvis into the abdomen, but may appear again during the last month, and then is probably due to renal inadequacy. The swelling of the limbs and external parts is due to the amount of pressure put upon some of the blood-vessels, thus causing distention of other blood-vessels.

Convulsions during pregnancy may be hysteric or epileptic, though they are generally uremic, caused by a disease of the kidneys, in consequence of which the waste material of the body, ordinarily disposed of by them, is retained in the body. The urine should be watched carefully; the increase or decrease in its amount, and its paleness or deepness of color, etc., must be reported. The premonitory symptoms which announce the convulsions in the majority of cases are—edema of the face, feet, and ankles, dull headache, dimness of vision, bright flashes before the eyes, ringing in the ears, a confused condition of the mind, and the presence of albumin in the urine. The convulsions of pregnancy are treated in the same manner as uremic convulsions.

Hemorrhage.—Should there be *hemorrhage from the womb during pregnancy*, the patient should be put to bed; the foot of the bed should be elevated and the head of the patient be lowered. The physician must then be sent for. The clots should be saved for the physician's examination. Cold may be applied to the abdomen and the genitals.

Termination of Pregnancy and Nurse's Preparations for the Confinement.—We will now suppose that a nurse has been called to a confinement case. What is the first thing to be done? She should find out if the patient is really in labor—if the pains are true pains or false pains. If *false*, the pains will be irregular and short; if *true*, they will be regular, first felt in the lower part of the back, and gradually increase to a certain intensity, then gradually subside. If the pains are the true labor-pains, the nurse should ask the patient at what time they began. The physician in charge of the case should then be notified, as well as subsequently, as he may direct.

Preparation of the Patient.—The patient's bowels should be emptied with a soap-and-water enema, which will both clear the bowels and make labor easier by removing the fecal obstruction. If this is not done, the pressure put upon the rectum during the second stage of labor will cause the bowels to empty of themselves, to the great annoyance of all in the room.

A full bath is to be given if possible; if there is not time for the bath, the external parts should be washed thoroughly. The hair of the patient should be braided in two braids. During the first stage she may be allowed to walk about; but if it is night-time, she may lie down and try to get a little sleep between the pains.

Preparation of the Bed.—The nurse should prepare the bed as follows: A large rubber sheet should be tightly pinned over the mattress, and covered with a sheet and a draw-sheet tightly tucked under the mattress; over these should be placed another rubber sheet and a draw-sheet, which must be tightly pinned at the four corners, so as not to be pulled out of place. If rubber sheets are not at hand, one may use newspapers, which can be burned afterward. The patient's napkins should be soaked in a solution (1 : 1000) of corrosive sublimate, and when dry folded in a towel and so kept until needed.

Accessory Preparation.—*Antiseptic pads* can be made with cheese-cloth and common cotton-wool. The cheese-cloth is to be washed with soap and water, boiled, dried, and then cut it into as many pieces as the required number of pads (the number should be about thirty), each piece being about 16 inches square; into each piece is folded the cotton-wool, which should first be cut about 8 inches square; the cotton-wool is then doubled, which will make it 4 inches wide and 8 inches long, so that when the pad is made it will be 4 inches wide and 16 inches long. These pads are soaked thoroughly in corrosive sublimate (1 : 1000), then dried, and kept in an antiseptic towel. When the pads are applied they should be pinned to the abdominal bandage back and front; when removed they must be burned. Preparations should also be made for sterilizing the doctor's aprons and instruments. Plenty of hot water should be at hand.

Other things that will be needed are—a pail, a fountain or Davidson syringe, safety-pins, scissors, a glass catheter, vaselin, stimulants, a fan, ergot (fluid extract), corrosive tablets, carbolic acid (1 : 20); a binder of stout cotton about 1½ yards long and from 16 to 18 inches wide; a basket for the baby if there is no crib (a clothes-basket, even a foot-tub, has been brought into use, lined with a blanket or comforter and provided with a pillow); a blanket or a receiver for the baby; clothing for the baby; boiled vinegar, ice, cold water, a minim-glass, an ounce graduate, a spoon, a feeder; a basin for the after-birth, basins for solutions for the hands; a bed-pan, soap, towels, a nail-brush, a hypodermic syringe, some old soft linen (old handkerchiefs answer nicely), and very strong thread or fine string for tying the cord. The string should be cut into twelve lengths, each 12 inches long; these pieces are divided into threes, which will give three four-strand pieces, each four to be knotted together at both ends. This gives three separate lengths, which, with the scissors, must be put into carbolic solution, and placed ready for the physician when he needs them. A word of caution to the nurse before proceeding: she should be scrupulously clean—she cannot be too clean. Septic material is carried by unclean hands and dirty finger-nails, by clothing, instruments, or anything that is used about the patient that is not perfectly clean and sterilized. Hands must be washed in antiseptic solution each time anything is done for the patient before and after delivery. After birth the womb is like one large wound; even the most minute portion of septic material will be absorbed, and may cost the patient her life.

LABOR.—In a *normal labor* the head is born first—"head presentation," as it is called—but there are other presentations, such as breech, brow, face, etc. For this reason the nurse must never attempt to take the responsibility of the case alone. She is not justified in so doing, because in large cities and country places a physician can always be called in time. She does not know what complications may exist, and by undertaking the case alone she might lose the lives of both mother and child. Neither is she justified in making an examination to ascertain the presentation without orders from the attending physician.

Under no consideration should a nurse take a case if she has been *near* a contagious case (medical or surgical), typhoid fever included, to say nothing of having attended one.

Stages of Normal Labor.—Labor is divided into three stages: *First stage*, from the beginning of the pains to the dilatation of the mouth of the womb; *second stage*, from the complete dilatation of the mouth of the womb to the birth of the child; *third stage*, from the birth of the child to the birth of the placenta.

First Stage.—The pains, which are caused by the contraction of the muscles of the womb, are very severe, and they increase in intensity and duration as labor advances. The first sign of labor is pain in the lower part of the back, which pain gradually comes forward to the front of the abdomen, extends down the thighs, and is of a bearing-down character. The pain at first is slight, but it increases until it reaches its height, then gradually disappears. When the pain is at its height the mouth of the womb is stretched, and as the pain passes off it closes and the membranes recede. These pains at first occur regularly, about every twenty minutes or half hour, and this regularity helps to distinguish true labor-pains from colic-pains, which are irregular. During the dilatation the mouth of the womb may be very slightly torn and the discharge of mucus be slightly tinged with blood; this is called the "show," and the physician must at once be notified. When the dilatation has reached a certain extent the bag of waters breaks. In this, the first stage, the patient may sit down or walk about, but she must be instructed not to bear down.

Second Stage.—At the beginning of the second stage the nurse must put the patient to bed, roll up under the arms the night-dress and under-vest, fasten them with safety-pins, and pin a sheet around the waist, leaving it open at the right side. This arrangement will guard against exposure and keep the night-dress and under-vest clean. The nurse, in the absence of the physician, should remind the patient from time to time to urinate. Stimulants must not be given without the physician's orders. When the pains come a roller-towel or a sheet may be tied around the foot of the bed, and the ends be given to the patient to pull upon.

The stage of expulsion now begins: the pains change; they are stronger, are more frequent, and force the child out of the womb through the vagina. At the end of each pain the head of the child goes back, or "retreats," and the patient may think that something is wrong; but finally the head reaches a point where it does not retreat, and at last slips out. There is then a little rest, during which time the nurse can wipe the eyes of the child with a cloth wet with sterilized (boiled) water and cleanse its mouth. Another severe pain now comes, and the shoulders and the rest of the body are born, accompanied with a rush of amniotic fluid and of blood from the placenta. This discharge may cause faintness due to the blood leaving the brain, for, the pressure upon the abdominal organs being removed, the blood-vessels are dilated, and the blood rushes to them; there may also be a chill, owing to a certain amount of nervous reaction. The womb now contracts on the placenta, which accomplishes its separation, thus shutting off the supply of oxygen to the child. This causes the child to gasp, and respiration is started.

Ether is sometimes given during the second stage to lessen or dull the pain. The cone, sprinkled with a small quantity of ether, is held over the mouth and nose when the pain begins, and taken off as the pain subsides.

Third Stage.—After the birth of the child there is usually a rest of about fifteen or twenty minutes, when the pains begin again, and the after-birth and membranes are expelled This is the third stage. When the child is born the womb contracts, and it can be felt like a round hard ball. The physician may ask the nurse to hold the womb; this is best done with the left hand. The abdomen is depressed so as to allow the womb to rest in the palm of the operator's hand, the fingers being then behind and the thumb in front of the womb; in this way the womb is firmly grasped. After the physician has tied and cut the cord he generally holds the womb until the placenta comes away; after the bed has been cleaned the pad and binder are applied. If the baby is all right, it is wrapped in the receiving blanket and put away and the nurse attends to the mother.

After all is over the womb gradually decreases in size and returns to its normal condition (*involution*), which usually takes from six to twelve weeks; but when involution is not complete, when the womb remains large and does not return to its normal shape, this condition is called ***subinvolution***, which may result in inflammation of the lining membrane of the womb.

Duration of Labor.—The duration of an ordinary normal labor is from seventeen to twenty-four hours for a first child, but is less long for a second. The pains, as a rule, begin in the evening, the larger number of births taking place during the small hours of the morning.

Conduct of Normal Labor.—Now, one may not always get a favorable state of affairs. The baby may be born before the physician comes, which accident is not uncommon with women who have borne children before.

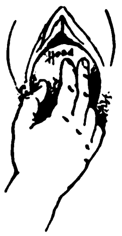

FIG 39.—Regulating expulsion of the head with the fingers of one hand against the occiput.

The patient should be put to bed on her left side; the perineum should be supported to prevent the head emerging too suddenly, which support will relieve the strain upon the perineum and lessen the danger of its being torn. This regulation of the expulsion is done by the nurse standing behind the patient at the left side of the bed and laying her right hand on the external genitals, which will bring the fingers on the left, the thumb on the right side, and the palm of the hand pressed against the perineum (Fig. 39). The head is to be pushed rather upward, so that the chin of the child will rest against its chest and relieve the strain on the perineum. When the head is born the nurse should see if the cord is wound around the child's neck; if so, it should be slipped over the head from behind; if this is not done quickly, the circulation of blood in the cord will stop and the child will die.

If there is a membrane over the child's face, it must be torn immediately or the child will suffocate. This is known as being born with a veil or "caul," which is due to the child being born with high rupture of the membranes. The eyes, nose, and mouth of the child must be cleared of mucus. The perineum must again be supported when the shoulders are being born, because it is stretched more than when the head passes through, and there is more danger of its being torn. Moreover, if it was slightly torn when the head was born, the tear may be made considerably larger. If the child does not cry and its mouth and nose are perfectly clear, it may be patted on the back with the hand or some stimulant may be rubbed on its back; if this does not make it cry, then the cord may be tied tightly in two places—the first ligature being 1½ inches from the child, and the second 1½ inches from the first—and cut between the two ligatures. The child should then be put first into hot and then into cold water, or artificial respiration may be practised by placing the child upon the bed with its back slightly arched by means of a folded towel or sheet. The nurse grasps a forearm in each hand, presses the arms lightly against the lower part of the chest to effect expiration, the arms are then slowly lifted above the head, which movement causes inspiration by raising the ribs and expanding the chest. These movements should be repeated ten times a minute. This is Sylvester's method, but it is of little value here.

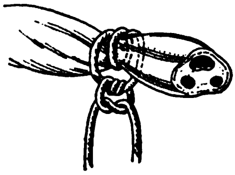

FIG. 40.—Diagram showing ligation of the cord (Wilson).

Schultze's method is very good. The child is held by the upper arms and shoulders, with its back to the nurse. It is then swung upward with the head downward above the nurse's head; the child is held in this position while the nurse counts five, when the first position is resumed (Fig. 41). The first movement tends to elevate the ribs, while in the second they are depressed. When the baby begins to breathe it must be wrapped in a warm blanket and be put in a warm place.

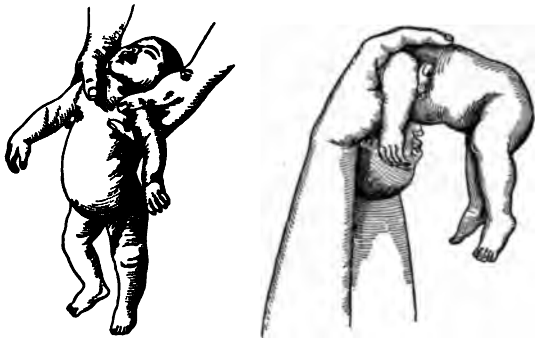

FIG. 41.—Schultze's method of artificial respiration (Hirst).

We will now suppose that the birth has been perfectly normal and that the nurse is still alone. As soon as the baby is born the nurse should grasp the womb firmly with the left hand and keep it contracted. When the pulsation in the cord ceases she must tie and cut the cord. She should then wrap the child in the receiver, lay it away, and attend to the mother, having first wiped the hands of the child to prevent any substance on them being carried to the eyes.

When the after-birth (placenta) is being expelled, the nurse can assist by pressing the womb evenly on all sides; as the placenta passes out, the nurse should turn it around so as to make a twist of the membranes, which procedure will prevent them from tearing and will bring them all away together. The placenta should be put in a basin and kept for the physician's inspection, after which it can be burned or buried. The patient may be given a teaspoonful of the fluid extract of ergot, which will contract the blood-vessels of the womb and keep up the contraction, thereby preventing hemorrhage. When the womb is hard and firm the patient may hold it while the genitals are bathed with an antiseptic solution. The patient is then turned on her side and her back bathed.

The soiled sheet and rubber cloth are removed by folding one side as closely as possible up to the back of the patient; the binder is arranged on the bed, the farther end being rolled up and placed next the patient, so that when she is turned over on the other side she rests on the clean permanent bed and the binder. The soiled sheet and rubber are removed and the binder straightened out. The nurse should keep up the contractions of the womb for about an hour longer, when it will be safe to pin the binder tightly about the hips, beginning at the bottom and working upward. The pinning should be done evenly, the pins being about 1½ inches apart. The binder may be fitted to the waist by taking in darts at the sides, and perineal straps may be applied to prevent it slipping up. The binder should extend from the hips to the waist-line. An antiseptic napkin should be laid over the genitals. The patient may be given a drink of milk or a cup of weak tea, which is generally preferred; when everything is quiet the patient will probably go to sleep. The nurse should move about the room quietly, keep out visitors, and, lastly, watch for hemorrhage.

Management of the Puerperium.—The room should be kept bright and cheerful, the air fresh and pure. The nurse should keep a record of the temperature, pulse, respirations, sleep, amount of diet the patient takes, and the condition of the bladder, bowels, and lochia.

The length of time that the patient remains in bed depends upon the amount of progress made and whether or not there is any blood in the lochia. The sitting up in bed will be gradual. Some physicians have the patient propped up in bed on the third day, though as a rule she does not leave her bed until the second week. The return to the customary mode of living is gradual. The period of lying-in is usually about four weeks. The patient must not be allowed to sit up in bed without the physician's orders, because sitting up or excitement of any kind may bring on a hemorrhage.

Catheterization.—The nurse should see that the patient urinates six hours after labor; she should not wait for the patient to express a desire to do so, but should remind her. There may at first be a little difficulty in urinating, but before passing the catheter the nurse should try any of the means usually resorted to in inducing the urine to flow—hot water in the bed-pan, the sound of running water from a faucet or a pitcher, or allowed to run down over the parts (cold water succeeds with some women), or hot cloths placed over the lower part of the abdomen; or the patient may turn over on her hands and knees: if these means fail, the nurse must then resort to the catheter. (See p. 70.)

Lochia.—The lochia are the discharges that follow childbirth; for the first few days they are a bright red, which gradually becomes paler and paler until they are almost transparent, and finally cease. The lochia may last two weeks or longer, the length of time differing with each patient. Any odor or departure from the normal must be promptly reported.

Napkins.—The napkins must be changed during the first few days every three hours, taking care that they have previously been soaked in some antiseptic solution. It is very easy at this time, if strict antiseptic precautions are not used, for germs to enter the uterine cavity or peritoneum, the result being puerperal septicemia. The parts must be kept clean and must be washed with antiseptic solution three times a day.

Douches must *not* be given without direct orders from the attending physician.

Diet.—The diet should be liquid for the first twenty-four hours; after that there may be given soft, light, easily-digested food. The *bowels* must be moved by the third day.

Temperature and Pulse.—The temperature may rise slightly during the first twenty-four hours after childbirth; then it should descend to normal, and so remain. A rise of temperature after childbirth may be due to constipation, exhaustion after labor, nervousness, or threatened abscess of the breasts; or it may indicate sepsis. Should sepsis be indicated, other symptoms, such as decrease of the lochia, offensive odor from the discharges, and distention of the abdomen, will be present. The pulse may, on the contrary, be found very low, sometimes as low as 50 beats. A low pulse is not at all serious, but must be noted.

After-pains are caused by the womb contracting, and they generally last four or five days. Nursing will often produce severe pains, because of the sympathetic relation between the breast and uterus, and by putting the child to the breast involution is hastened.

Lactation.—The child must be put to the breast six or eight hours after birth, after the mother has rested. The *milk* does not generally appear until the third day after delivery, but the breast contains a secretion called "colostrum," which acts as a laxative and clears the bowels of the child; putting the child to the breast early also teaches him to nurse and assists in forming the nipples. The breasts must be nursed alternately regularly every two hours during the day, and the nipples must be washed before and after each nursing with water to which a little borax has been added. If the nipples are soft and tender, they may be hardened by bathing them with equal parts of alcohol and water.

Care of the Breasts.—If the breasts are sore and painful, this condition must be reported to the physician: in the mean time the nurse may rub the breast with warm sweet oil and apply gentle massage, massaging from the base toward the nipple. The pulse and temperature should be taken. A *cracked nipple* must promptly be attended to, the child nursing from the other breast; the nipple must be kept perfectly clean; the milk must be drawn from the sore-nipple breast with a breast-pump (Fig. 42), and the breast massaged gently to relieve the tight feeling. The nipple usually heals after a rest of one or two days. The bowels must be kept open. If the milk-secretion is scanty, the mother's diet should be a mixed one, milk entering very largely into its composition. Alcohol, such as beer or porter, does not make milk, as is commonly supposed, but tends only to fatten the mother.

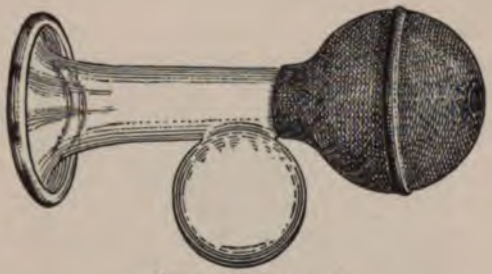

FIG. 42.—Breast-pump.

Breast-bandage.—The breast-bandage most commonly used is made with three toilet napkins or with two pieces of muslin. The two napkins are pinned together to form a V, and are fastened to the middle of one end of the third napkin after the manner of the Y-bandage.

The single napkin is passed across the back, which brings the V-shaped napkins directly to the side of the breast; these two napkins are carried across the chest, one below the breasts, the other above, and pinned to the free end of the napkin crossing the back (Fig. 43). This bandage holds up the breasts. The muslin *compress* is arranged in exactly the same way, though only two pieces are needed (each folded and about 6 inches wide), one small piece to pass under the back, the second piece large enough to go twice across the chest in the shape of a double V (<>), and pinned to the ends of the small piece. If the baby is nursing, this bandage is left open; if not, a pad of cotton is placed between the breasts, and the edges are pinned together with small safety-pins. Straps of muslin passed over the shoulders and pinned back and front will keep the bandage in position.

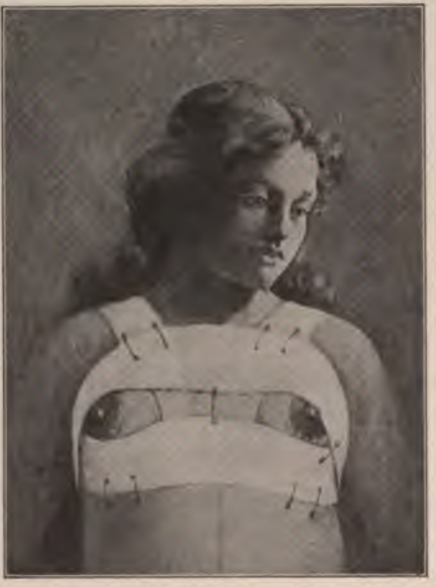

Fig. 43.—The Y-bandage applied (Boston Lying-in Hospital).

Pathology of the Puerperium.—Some of the complications which may arise after childbirth are hemorrhage, puerperal insanity, eclampsia, and phlegmasia dolens.

Hemorrhages.—Hemorrhage after childbirth is called "post-partum hemorrhage," and is due to the womb relaxing. The *symptoms* of post-partum hemorrhage are restlessness or tossing of the patient in bed, faintness, pallor, a demand for air, a sense of dizziness, shortness of breath, and a weak, rapid pulse. The restlessness alone should put the nurse on her guard and lead her to investigate. The nurse should put one hand on the abdomen and feel for the womb by pressing on the abdomen; if the womb is found, grasp and squeeze it hard, squeezing out the clots; the womb may not be found, owing to its relaxed condition, or it may be found large and firm, owing to the formation of a blood-clot which prevents the womb contracting and keeps the blood-vessels open. The nurse should call for assistance and send some one for the family physician. If he lives at a distance, the nurse is justified in sending for the nearest physician. The assistant should be directed to elevate the foot of the bed (to send the blood back to the heart and brain) and to bring the basin of antiseptic solution, vinegar, gauze, or a clean handkerchief. The nurse should wash her free hand in the antiseptic solution and clean out the clots from the womb; then the gauze or handkerchief should be soaked in the vinegar, be carried well up into the uterine cavity, and squeezed. The vinegar will flow back over the walls of the womb and the vagina and cause the blood-vessels to contract. This treatment should be continued until the bleeding stops. Ergot may in extreme cases be given hypodermatically, injected either into the upper part of the thigh or the abdomen. A hot douche of water and vinegar, equal parts, its temperature being about 118° F. or 120° F., will also contract the blood-vessels. The nurse should see that the bladder is empty; she should also watch for collapse and give stimulants. Morphia (⅛ grain) may be given to secure rest. Kneading of the womb must be kept up all the time with one hand. The application of ice is not advisable, because ice may not be clean, and it may be the means of introducing septic material into the cavity of the womb. Vinegar is the best; it is an astringent, it can always be had, it is readily applied, and its action is generally very prompt.

When the bleeding has stopped the kneading must still be continued until the womb is firm and small. The foot of the bed and the hips should be kept elevated, and the patient should not be left alone for a moment. This is one of the cases in which prompt action, a calm and collected mind, and a steady hand are absolutely necessary. It is always a safe plan to have close at hand vinegar, very hot water, a syringe, and gauze or clean soft rags which have previously been sterilized in the oven for a number of hours after delivery, in case this accident should happen. The nurse is then prepared for prompt action, for it does not take long for a patient to bleed to death.

Septicemia.—Puerperal septicemia is caused by neglect of antiseptic cleanliness on the part of the attendant (see p. 179). It begins with a chill or a continued chilly feeling, followed by a rise of temperature and accelerated pulse, a bad odor from, and probably suppression of, the lochia, cold, clammy sweat, anxious expression, and distention of the abdomen. The smallest rise of temperature should make the nurse watchful; she should notify the physician, move the patient's bowels, give a vaginal douche of 1 : 5000 corrosive sublimate, and apply turpentine fomentations to the abdomen. The patient should be stimulated if necessary.

Insanity.—The treatment of puerperal insanity or melancholia lies in keeping the patient perfectly quiet and preventing her from harming herself. The air of the room must be kept fresh and pure; the patient's strength supported with nourishing food; baths may be given to promote activity of the skin; the bowels must be kept open; and any article or any person that tends to excite the patient must be removed from her sight. The baby is taken from the breast when the symptoms first appear, and must be taken from the room. Bed-sores must be guarded against, and a strict watch must be kept over the patient; if allowed to be up and around, she must not be permitted to go out of the nurse's sight. With a little tact the nurse can manage this surveillance without letting the patient think that she is being watched. The causes of puerperal insanity are many, and a good recovery depends chiefly upon the nursing.

Eclampsia (*Convulsions*).—In event of convulsions the nurse must send at once for the attending physician, and put something in the mouth of the patient to prevent her biting her tongue. A hot pack or a vapor-bath may be given, and ice be applied to the head.

Phlegmasia Dolens.—Phlegmasia dolens, or milk-leg, is due to a blood-clot forming in a vein. There is swelling of the affected limb and pain, and its surface is white and drawn. The disease may be ushered in with a chill or a chilly feeling and a rise of temperature and pulse. The patient must be kept on her back, and the limb be elevated and kept warm by wrapping it in cotton-wool. Recovery takes place with the absorption of the clot.

Thrombosis.—Thrombosis is a clot of blood in a vein obstructing the circulation. It is generally caused by the patient walking, or even standing, too soon after an illness. Clotting may also take place after childbirth. There is swelling of the part, which swelling goes down as the clot is absorbed. But if absorption does not take place, if the clot is swept onward in the circulation of the blood to the right side of the heart, sudden death results from the obstruction of the pulmonary artery. This process is called *embolism.*

Extra-uterine Pregnancy.—Extra-uterine pregnancy is the development of the ovum outside the womb, either in the Fallopian tube, the ovary, or the abdominal cavity, but generally in the Fallopian tube. As the ovum grows the walls of the tube become very weak and thin, until at last, about the fifth, eighth, or twelfth week, they rupture. There is then sudden pain in the affected side, together with all the symptoms of internal hemorrhage and collapse.

Cesarean Section.—Cesarean section is the removal of the child from the womb by abdominal incision. This operation is performed to save the life of the child should it be living after the death of the mother, or in case there is some pelvic deformity or tumors obstructing natural delivery.

III. NURSING IN GYNECOLOGIC CASES.

Preparation for Gynecologic Examination.—To *prepare a patient for examination* the genital parts should be cleansed and the bladder and bowels be emptied. The womb lies between the bladder and the rectum, and the distention of either of these organs will alter the position of the womb. A douche must *not* be given *before* an examination, because the surgeon will want to see the character of the discharge. All bands around the waist and the corset must be loosened; a single tight band around the waist will crowd down the contents of the abdomen and displace the uterus. Around the patient is thrown a sheet, beneath which she can raise her clothing above the waist, and then step upon a chair and thence to the edge of the operating-table without there being the slightest exposure.

For the examination there is needed a small table covered with a shawl, a rug, and a comfortable or blanket; over these a sheet is spread and a pillow is placed for the patient's head. There should be at hand a sheet to cover the patient; a chair by the table for her to step upon; a table, covered with a towel, on which are placed two bowls, one containing corrosive-sublimate solution (1 : 1000), and the other containing warm water; a piece of soap (castile) or vaselin; and towels.

Positions for Examination.—The four positions for examinations, and also for operations, are the dorsal, the Sims, the knee-chest, and the upright.

Dorsal Position.—The patient lies upon her back with the knees drawn up and separated; the hips are brought down near the edge of the table, leaving sufficient room for the heels to rest comfortably, 8 or 10 inches apart, without slipping from the table. The clothing is pushed above the knees and the sheet hangs in front, completely covering the patient's legs and avoiding all exposure (Fig. 44)

Sims Position.—In the Sims position (Figs. 45, 46) the patient lies on the left side of her chest, with her head and left cheek resting on a low pillow, and the left arm is drawn behind the body or hangs over the edge of the table. The hips are brought down to the left-hand cornér of the table, so that her body lies diagonally across it, the head and shoulders being at the right-hand side, with the right hand and arm hanging over the table edge. The thighs are flexed upon the body, the right knee being so bent that it lies just above the left, and the feet rest upon a board extending from the right-hand corner of the table (Fig. 45). The patient is covered with a sheet, and the buttocks are covered with two towels, one to cover each side, their upper ends being tucked under the clothing, the lower ends being tucked between and under the legs, thus simply exposing the entrance to the vagina (Fig. 46). This position is one in which a practical illustration is needed before one can fully understand how to place the patient, and also how to arrange the towels.

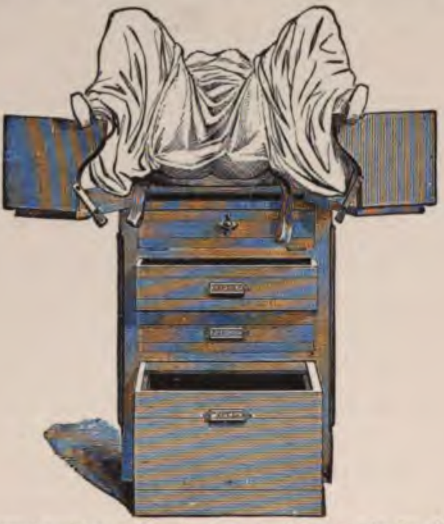

FIG. 44.—Dorsal position, with patient arranged for examination (Codman and Shurtleff).

Knee-chest Position.—In the knee-chest position (Fig. 47) the patient first kneels on the edge of the table, then bends forward and rests her chest on a low pillow, her head lying just beyond, so that her back slopes down evenly, her arms clasping the sides of the table. The clothing is drawn above the waist, and the patient is covered with a sheet. In this position the abdominal organs are thrown down toward the diaphragm; the vagina may be readily distended with air by separating its sides, so that an unobstructed view of the vagina and the cervix may be obtained.

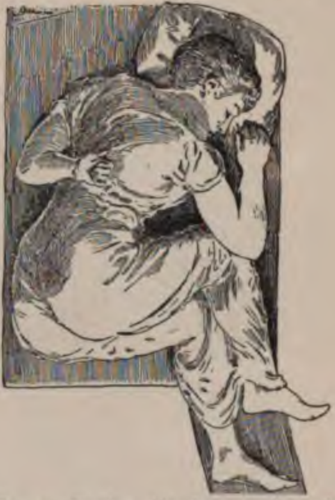

FIG. 45.—Sims's position for tamponing and curetting (Dickinson).

Upright Position.—In the upright position the clothing of the patient is drawn up, and around the waist is pinned a sheet extending to the floor. The patient stands with

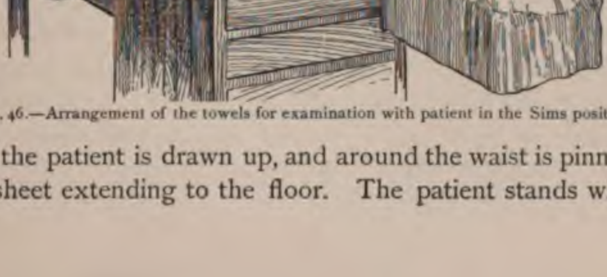

FIG. 46.—Arrangement of the towels for examination with patient in the Sims position.

limbs separated, one foot resting on a stool or the rung of a chair.

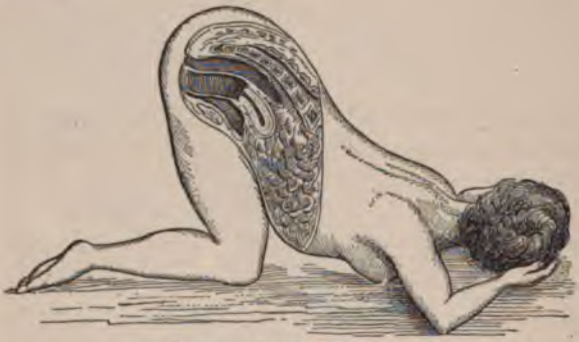

FIG. 47.—Knee-chest position.

Preparation for Operation.—For gynecologic operations the nurse makes her preparations in the same manner as for abdominal operations, using the same antiseptic precautions. In an emergency, when a slight operation is to be performed with the patient in bed, there will be needed a table or a chair covered with a sterilized towel or sheet for the instrument-tray, bowls, hot and cold water, a fountain syringe filled with corrosive-sublimate solution (1 : 3000) and a wide board or an ironing-board for insertion between the mattress and sheet (thus making a hard surface for the patient to lie upon), a chair for the surgeon, soap, and a nail-brush.

A piece of rubber cloth, or oilcloth, or newspapers will serve for the pad. The material used is folded at the top and sides, covered with a towel, and the unfolded end draped into a pail or a wash-tub. When the patient is etherized the bed is turned toward the window to afford the surgeon a good light—the northern light if possible. A bay window must be avoided, because it gives cross lights.

The limbs are flexed, the hips are brought down to the edge of the bed, and the pad is placed under them, so that the water used in bathing the external parts is conducted by the cloth into the pail or the tub. When holding the patient's limbs the nurse should let the heel of one foot rest in the palm of her hand; the knee of the patient will then rest against the chest of the nurse,

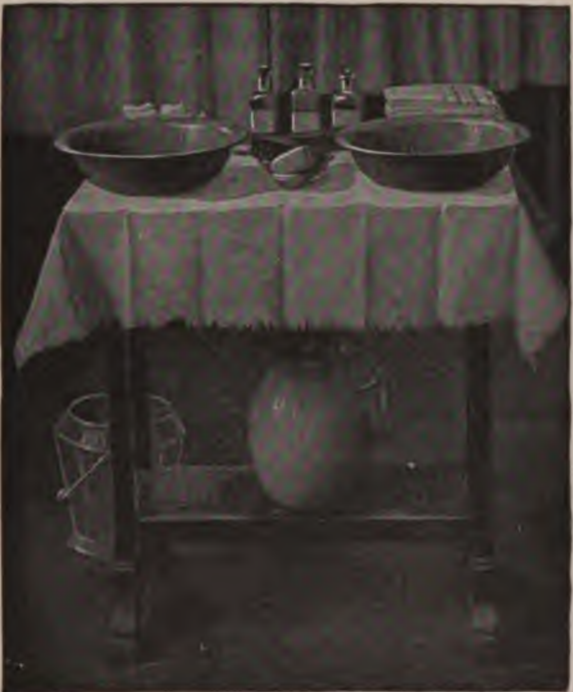

FIG. 48.—Table equipped with basins, brushes, antiseptics, etc. for the physician's use (Dickinson).

whose free hand is passed over and holds the other limb in position at the knee. If the patient is in the Sims position and the nurse is asked to hold the speculum, it should be held with her right hand in the exact position in which the surgeon has placed it (Fig. 49);

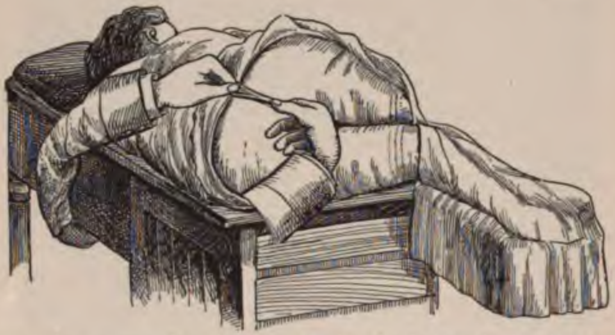

FIG. 49.—Arrangement of towels for examination, showing introduction of the speculum with patient in the Sims position.

her left hand, being passed over the patient's thigh, should raise the right buttock.

After-care.—The after-care of gynecologic cases lies mainly in procuring absolute rest and quiet. The patient must see no visitors without permission from the surgeon. The limbs are generally tied together for the first few days, especially after an operation on a lacerated perineum, to prevent the external stitches (sutures) giving way in case the patient should toss about.

The genital parts must be kept perfectly clean, and strict antisepsis must be observed, as septic material readily finds access. After passing the catheter the nurse should be careful that when removing it the urine does not drop on the stitches; the parts are afterward sprayed with the ordered solution and dried. When giving douches the nurse must insert the tube carefully and away from the stitches, and after the douche is over she should softly wipe the vulva dry with sterilized gauze or cotton. The same care must be used when giving enemas, so that the rectal and vaginal stitches are not broken by the tube. The patient must be instructed not to strain when the bowels are being moved, or the stitches may break. If the uterus is packed with gauze, the pulse and temperature are taken every two hours; should the temperature rise to 101° F., the surgeon will probably order the packing to be removed.

Diet.—The diet is liquid until after the third day, when the bowels will have been moved; then, if all is well, the amount of food is increased.

Vaginal Tampons.—A vaginal tampon is made of absorbent cotton, lamb's wool, or gauze, and is about 7 inches long, 1½ inches wide, and ½ inch thick, folded and tied in the middle with strong white thread or fine twine, leaving long ends with which to remove the tampon. The *kite-tail* tampon is made by fastening several of these pieces of cotton to a piece of thread about 2 inches apart. When the tampon is made the pledgets of cotton are soaked thoroughly in water, then in glycerin, after which they are put away; or they may be sterilized and the tampon put away in an aseptic glass jar.

Vaginal Dressings.—Vaginal dressings are made of strips of absorbent cotton, lambs' wool, or gauze (three thicknesses), 1½ inches in length and width. They are prepared for use in the same way as the tampons.

Each surgeon has his favorite dressings, and after seeing a dressing done once the nurse should know what to prepare for him the next time.

IV. DUTIES OF THE NURSE IN GENERAL SURGICAL CASES.

We will now consider the preparations for an operation, and the care of the patient before, during, and after operation.

Preparation of the Operating-room.—The directions for the preparation for an operation will be given by the surgeon in charge. In some houses the nurse may have a separate room, or even the kitchen, for the operating-room, while in others she will have to prepare part of the patient's bed-room. In the latter case the brightest end of the room should be prepared for the operation, to afford the surgeons plenty of light. A screen must be put up before the bed, so that the patient will not see the preparations; some patients, however, will take a great interest in all that is going on, while others will be exceedingly nervous. The nurse should remove from the room all movable furniture; lay oilcloth, or newspapers covered with a sheet, over and pin securely to the carpet, and across the window fasten a curtain or newspapers, so that the operation cannot be viewed from the opposite side of the street. The remaining furniture and window-frames should be washed with carbolic-acid solution (1 : 20), and on the morning of the operation should be dusted with a cloth wrung out of the solution. The things necessary for the operation can be placed on the operating-table, covered with a sheet, and be left outside the room until the patient is partly etherized, when they may be carried in.

If a separate room may be had, one with a northern light is to be preferred, and, if possible, it should be far away from the bath-room for aseptic reasons. All unnecessary furniture being removed, the hangings must be taken down, the room thoroughly swept, and the walls and remaining furniture washed with carbolic-acid solution (1 : 20) and exposed to the action of the sun and air for about twelve hours, when the windows are to be closed, the room thoroughly dusted with a damp cloth, and not again disturbed. The *kitchen* makes a good operating-room; it is warm, hot and cold water is close at hand, and one is not afraid of soiling carpets or hangings.

Operating-table.—The operating-table should not be wider than 25 inches, nor higher than 37 inches, because if low and wide the surgeons will have to stoop and bend forward. A kitchen table or a dining-room table with the leaves let down, and a small table at one end for the patient's head, will make a good narrow operating-table; or three chairs, with two planks, a leaf from an extension table, or an ironing-board laid across them, may suffice.

The table may be covered with rubber cloth, oilcloth, or even with newspapers, two sheets, and a blanket. A word of caution here: the nurse should not use any old blanket or comfortable to cover the operating-table; it may be filled with germs, which must be avoided.

Two wooden chairs should be at hand in case the Trendelenburg position is necessary, and two wooden boxes for the surgeons to stand upon when using this position.

Preparations for the Operation.—The evening before the operation the nurse should boil a wash-boiler full of water and set it in covered pitchers to cool, the wash-boiler and pitchers having first been made thoroughly aseptic.

On the morning of the operation the nurse should sterilize in the boiler or in an oven six sheets, two blankets, twelve towels, and twelve sponges. She should not take the best towels in the house, because they are spoiled by the solutions and the blood. There will be needed six bowls, which may be of agate-ware or be the ordinary bed-room china bowls—one for permanganate of potash, one for oxalic acid, one for sterilized hot water, one for corrosive sublimate, one for the surgeons' hands, and one for the vomit. If there are no pails for the sponges, the hot and cold water may be carried in the bed-room toilet pitchers. After the hands have been made aseptic and the part washed the permanganate and oxalic acid can be disposed of and the bowls be used for the sponges. Two tables will be needed—one for the instruments, the other for the assistant—which can be improvised in the same way as was done for the operating-table (p. 159), and covered with sheets or towels. There will also be needed a pail or a wash-tub for the soiled water, a tin dish or a flat bake-pan for the instruments, brandy, a hypodermic syringe (which must be placed in a bowl containing carbolic-acid 1 : 20 solution), and the syringe be filled with the solution, strychnin tablets ($\frac{1}{25}$ grain), a small tumbler, a Davidson or a fountain syringe, common table-salt for salt-solution, sheet-wadding, absorbent cotton, bandages, sterilized gauze, safety-pins, rubber tubing for a tourniquet, two new nail-brushes, castile soap, green soap, a razor, hot-water bottles, two blankets, alcohol, matches, and twelve gauze sponges of various sizes—three 2 inches square, three 4 inches square, three 6 inches square, and three 8 inches square.

Sterilization.—Sterilization may either be *dry* or *moist;* moist heat is preferable, because it is more thorough and more penetrating than dry heat. For dry sterilization the clothing and dressings are placed in covered tin pans in the oven, the temperature ranging from 160° to 212° F. For moist or steam sterilization an ordinary wash-boiler is used. Water is poured in to the depth of about 6 inches; sticks or bricks, placed crosswise, are built up above the level of the water, and upon them rest the clothing and dressings.

For both these methods the heat must be continued for fully one hour before the operation. The instruments are wrapped in a towel and allowed to boil for ten minutes in a tin pail or a kettle of boiling water to which has been added 2 teaspoonfuls of washing-soda to each pint of water, to prevent them from rusting. There must be left hanging out of the kettle one end of the towel, by which to lift out the instruments. The water must boil some time before the instruments are placed in it.

Operative Position.—The most popular position for abdominal operations is the Trendelenburg (Fig. 50). This position is one in which the knees of the patient are considerably higher than the head, the body slanting upward from the shoulders; the intestines are thus thrown down toward the diaphragm, giving the surgeon a clear view of the pelvic organs. In the absence of a Trendelenburg table the position can readily be obtained by raising the lower end of the operating-table and placing chairs or boxes under its feet; or a wooden chair or a high box can be secured to the operating-table and covered with sterilized sheets.

Preparation of Patient.—If the nurse has from twenty-four to thirty-six hours in which to prepare the patient for operation, she should give the patient, the day before the operation, a full bath and a cathartic of either castor oil, citrate of magnesium, salts, or compound licorice powder. The diet must be nourishing and light. Milk should not be given before an abdominal operation, because the stomach may not digest it thoroughly, and its curds may remain in the intestines and act as an irri-

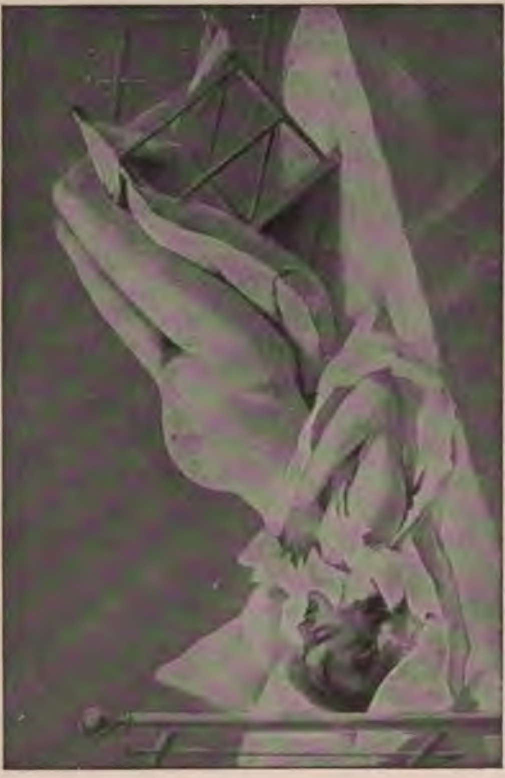

FIG. 50.—Improvised Trendelenburg apparatus by means of a chair laid on its face on the bed (Dickinson).

tant. Gruel is best given; it is nourishing and easily digested.

The part to be operated on must be shaved (if the patient is very nervous it is generally well to leave this operation until she is partly etherized). After the shaving, the part is thoroughly cleansed with soap and water and a nail-brush, then with ether, which removes all oily and fatty substances, then with warm corrosive-sublimate solution (1 : 1000), after which cleansing a pad of sterilized gauze, absorbent cotton, or a towel is wrung out of the solution, applied over the part, and held in place with a sterilized bandage and perineal straps. This pad is not removed until the surgeon is ready to operate. The patient must be instructed not to put her fingers underneath the dressing or to disturb it in any way.

No definite rules can be laid down for the surgical bath, as surgeons differ in their method of preparing patients for operation. The bath may be given in the manner just described, while some surgeons will direct the application of a *poultice of green soap*, which is removed early on the morning of the operation, the part being scrubbed with hot water and a brush to remove the soap, and a warm corrosive-sublimate poultice (1 : 1000) applied.

On the morning of the operation the patient should be given a simple enema to clear the bowels, and a sponge-bath; the nurse should then put on the patient a clean under-vest, night-gown, and stockings, and braid the hair in two braids; she should also remove from the patient all rings and ear-rings; also false teeth, whether a whole or a partial set, as there is danger of their being swallowed, and put them away in a tumbler of cold water. Two hours before the operation the patient may be given a stimulating enema of whisky (1 ounce) and warm water (2 ounces). This enema may be followed in one hour with atropin ($\frac{1}{100}$ of a grain), which acts as a sedative and lessens the irritability of the stomach caused by the ether; it also lessens the secretions of the mouth and throat and prevents the throat filling up with phlegm. Both these stimulants should be given by enema, because if given by the mouth they might stay in the stomach unabsorbed, and the patient would vomit them when under ether. No food must be given after midnight, unless the operation is to be performed late in the day—about noon-time or in the afternoon—in which case the patient may have, six hours before, beef-tea, gruel, or coffee. Milk should not be given, as it is very apt to curdle and stay in the stomach, and, should the patient vomit while under ether, the curds may get into the larynx and trachea and choking result. The catheter should be passed before etherization if the operation is abdominal, even if the patient has urinated a few minutes before, and the nurse should be sure that the bladder is empty.

Special operations, abdominal and gynecologic, call for special directions, which will be given by the surgeon in charge.

Duties of the Nurse in Emergency Cases.—We will consider the preparation for an emergency operation in a very poor family, where there are no conveniences. We will presume the case to be one of appendicitis, and that the nurse has been called in the night. While the surgeon is making his examination of the patient the nurse should start a fire and put on the wash-boiler, to make sure of plenty of boiling water; she should then get six sheets and twelve towels, if possible. There may be no clean towels, and the nurse will have to wash some dirty ones. After being washed clean they can be placed in a tin pan, boiling water poured over, and allowed to remain in the water a few minutes, when they are wrung out and placed in corrosive-sublimate solution (1 : 1000) until the surgeon is ready to use them.

The kitchen should be rendered as clean as possible. The kitchen table should be prepared for the operating-table, and there should be procured two small tables for the instrument-tray and the sponges. If small tables cannot be had, chairs covered with a corrosive sheet or towels will do. If there is no gas-light, the nurse should get as many lamps as she can, and arrange them near the surgeon, but not too near the ether, because ether is inflammable. The instruments are to be wrapped in a towel and boiled for ten minutes in a kettle of boiling water to which has been added two teaspoonsful of washing-soda to the pint of water, to prevent rusting. There must be left hanging out of the kettle one end of the towel, by which to lift out the instruments.

After the surgeon has made the examination the part must be shaved, washed, and a corrosive towel applied; an enema should be given to clear the bowels, also a stimulating enema, and the urine should be drawn. While the patient is being etherized the nurse may arrange the tables and wash a flat bake-pan or meat-pan for the instruments. If sponges have been forgotten, a clean sheet can be torn up and folded into flat sponges. China basins can be used for the antiseptics, the sponges, and the surgeon's hands; china pitchers for hot and cold water; a wash-tub for the soiled water; and hot bricks or beer-bottles for heaters. No matter how poor the family, the kitchen can be cleaned and prepared as an operating-room in a few minutes. Boiling water kills germs on contact, and where there are no means of sterilizing the sheets and towels, they can be soaked first in boiling water and afterward in corrosive-sublimate solution (1 : 1000). end

Anesthesia.—Ether.—A few words about the giving of ether, which duty may sometimes fall to the nurse, especially in emergency cases. Unless unavoidable, ether or chloroform must be never given on a full stomach, because the patient may vomit, and particles of food may lodge in the larynx and trachea and result in strangulation. The bladder and bowels must always be emptied, or they may act involuntarily. An ether cone is made by folding a newspaper, or a straw cuff may be shaped to fit over the nose and mouth, a stiff towel being folded around and secured with safety-pins, and a clean handkerchief or piece of cotton placed inside.

Absolute silence must be maintained while the ether is being administered, as any conversation may be heard by the patient. Whatever is said by the patient when going under ether or coming out must be kept absolutely secret. Care must also be taken when the patient is coming out of ether that the operation is not discussed. Many patients have been made miserable through carelessness on this point; for, while they could hear everything that was said by the nurses, they were totally unable to make any sign by which the nurses would know that they could hear. Death from ether is slow—by paralysis of the respiration—the signs of danger being a blue and livid color of the skin, the respirations being low, shallow, and gasping. Ether affects people differently, and no definite rules can be laid down. Ether should be given slowly; in other words, the cone should not be filled with ether and put over the face, entirely smothering the patient. The nurse should show the patient how to inhale it, slowly and deeply, and also instruct the patient to close the eyes, because ether is an irritant to the eyes. About 2 teaspoonsful of ether are poured into the cone, which the nurse should hold a little distance from the patient's face, and as she becomes accustomed to the ether and under its influence the cone may be brought nearer; the strangling sensation of which so many patients complain is then in a measure avoided. Ether generally first produces choking and coughing, followed by excitement; this is followed by the muscles becoming rigid, the face blue, and the breathing stertorous or snoring; this stage passes away, the muscles become relaxed, and the patient is in a state of insensibility.

The lower jaw must be kept forward by placing the thumbs behind the angles of the jaw. Pushing the jaw forward and upward, which brings the upper behind the under teeth, prevents the tongue slipping back and obstructing the larynx, and gives free access of air to the lungs (Fig. 51). Should the tongue slip back, it may be pulled forward with the fingers or with a pair of forceps. Frequent inspirations of fresh air should be given. When completely etherized only a small quantity of the drug is needed to keep the patient under its influence. The mucus should be

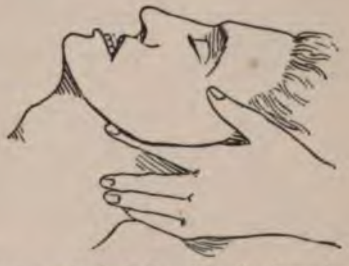

FIG. 51.—Method of pushing the lower jaw forward to prevent obstruction to breathing.

wiped from the patient's mouth. The pupils should remain contracted all through etherization, and dilate when the patient is coming out of ether. If the pupils are dilated during etherization, the patient is over-etherized, and they remain dilated until the muscles of the eyes regain their tone, when they contract. The sudden dilatation of the pupils is generally a sign of imminent death. It is very important for the nurse to watch carefully the respirations, because ether kills by suffocation, the heart usually beating long after the respirations have ceased. The nurse should *speak out* if the pulse is growing rapid, feeble, irregular, or intermittent; if the respirations are becoming low, rapid, or gasping; if the face is becoming pale or blue, or the pupils are gradually dilating.

If the patient seems inclined to vomit, the ether should be pushed, which will generally ward it off; should she vomit, her head should be turned to one side, to allow the matter more easily to escape from the mouth. One will see from the above that the giving of ether requires the undivided attention of the etherizer; no one can etherize and see the operation at the same time. *Nausea and vomiting* after ether may continue for two or three hours or longer. Should it persist until the following day, it may be due to shock or to some cause other than ether. Very hot water will often check vomiting, or crushed ice, black coffee, small doses of brandy, champagne and ice, or aromatic spirits of ammonia. Cocain, $\frac{1}{4}$ grain every two hours for five doses, has been successful in severe cases; also a mustard plaster over the stomach and the washing out of the stomach. Patients who take chloroform do not suffer from nausea so much as do those who take ether.

In etherizing young children it is best to put them on the back and at once place the ether-cone over the mouth and nose without temporizing. If their pleadings to have the cone taken away are listened to—and they are hard to resist—their agony will only be prolonged and the operation delayed. Children are quickly etherized, and very rapidly recover from the influence of the ether.

Chloroform is similar in its action to that of ether; it is pleasanter to take, and the patient is under its influence quicker, though it is more depressing on the heart than ether, and for this reason the patient is not allowed to rise until all effects have passed off. To give chloroform, a few drops may be sprinkled on a handkerchief, a towel, or a small wire framework covered with flannel, or the drops may be sprinkled on a piece of absorbent cotton placed in a tumbler, which is held a little distance from the patient's face. The same symptoms are to be watched for as those in ether. Death from chloroform is almost always sudden, from paralysis of the heart: the pupils become dilated, the face becomes pale, and the pulse becomes flickering.

Nurse's Duties in Operating-room.—The duties of the nurse in the operating-room are the same for all operations. Her dress must be of cotton goods, the sleeves being made to roll up above the elbows. Both dress and apron must be fresh for the operation.

On first going to the operating-room the hands and forearms of the nurse are to be thoroughly washed and scrubbed for ten minutes, and the finger-nails thoroughly cleaned, thus removing the germs from the hands. The hands are then rendered absolutely sterile by putting them first into a saturated solution of permanganate of potash until they are of a deep-brown color from the tips of the fingers to the elbow, then into a hot saturated solution of oxalic acid until all the permanganate stain has been removed; they are then washed in sterilized hot water, and finally are soaked for three minutes in a solution of corrosive sublimate (1 : 500), which reaches the corners and crevices in the finger-nails that cannot be reached by the brush.

Some surgeons prefer ether and alcohol to cleanse the skin. After the hands have thoroughly been scrubbed in hot soap-suds and the finger-nails cleaned, the hands are washed in ether, which removes from the skin all oily and fatty substances; they are next washed in pure alcohol for one minute, and finally soaked for three minutes in a solution of corrosive sublimate (1 : 1000). The patient's skin is cleansed in the same manner with ether, alcohol, and the sublimate solution.

The nurse next puts on a sterilized gown. If there are no gowns—as in an emergency case, for instance—three sterilized sheets (see p. 165) will answer for gowns for surgeon, assistant, and nurse. The nurse now puts her hands again through the different solutions, and stands ready to get anything that may be called for.

After making her hands aseptic the nurse should not touch her hair, her face, a door-knob, or anything that has not been made aseptic. If any article falls to the floor, it must not be picked up unless it is an instrument that the surgeon will need; then it must be boiled in a small pan which should be in the room in case this accident happens. If a sponge falls, the nurse should move it with her foot to a position where it can be seen. The assistant will always tell a nurse when he wants fresh water for sponges; on no account must she take the pail without his knowledge. If she is asked to do anything that she does not understand, she should so inform the surgeon, who will always be perfectly willing to make the duty clear.

The pails, bowls, and pitchers, and the tray for instruments must be washed inside and out, and filled with sterilized hot water, which is conveyed from the boiler to the pail by means of a perfectly clean pitcher or a tin ladle. The pads and rubbers to be used, also the operating-table (the patient is generally etherized in bed), must be thoroughly washed with the corrosive-sublimate solution (1 : 1000).

If the nurse is to wash the sponges, she should first make her hands aseptic, then count the sponges as she puts them into the pail of water, the surgeon counting them at the same time. She must be on the alert in case a fresh sponge or a sponge of a certain size is suddenly called for; she should then take the soiled sponge from the surgeon with her left hand and give him the fresh sponge with her right. She should not, while waiting to hand a fresh sponge, rest her hands or forearms on the pail; and if she has to stop to get something for the surgeon or to get fresh water, her hands must again be washed in the antiseptics before touching the sponges. If she is to sponge the wound, she should wipe swiftly and firmly. She should count the sponges before the surgeon begins to sew up the wound, and should be very sure that she has the exact number employed in the operation.

Arranging the Patient for Operation.—When the patient is brought into the operating-room and placed on the table, the clothes must be removed from the part to be operated upon, to prevent their getting soiled. If the part to be operated upon is the head or the chest, the night-gown must be pushed well down under the shoulders; if it is a breast, an arm, or a leg, the gown should be opened down the front and be pushed to the opposite side; if it is the abdomen, the gown and under-vest must be brought well up under the shoulders and the under-vest be turned up so as to hold the arms in position across the chest.

Sterilized blankets are tucked about the chest and the feet, the bandage and pad are removed from the part, and the latter is again thoroughly cleansed with soap and water and disinfectants. Sterilized sheets and towels are then arranged about the part. A table for the instrument-tray is placed at the surgeon's right side, also a chair or table on which is placed a pail or bowl of water for his hands. A table for the pails or bowls for sponges is placed at the opposite side of the table, at the assistant's right hand, and the operation is begun.

After-care of Patient.—Just before the wound is closed the soiled towels are removed and replaced by fresh ones. After the dressing has been applied the patient is raised, wiped perfectly dry, a bandage put on, and is then carried to the bed, which has previously been prepared and heated with heaters well covered to prevent burning the patient. A towel should be placed under the chin of the patient in case she should vomit, and a small basin should be at hand, but not where she can see it on first returning to consciousness. The patient should not be left until she is well out of the ether. If there is a member of the family not afraid of the sight of blood, the nurse may ask her to assist in cleaning up the room.

Sequels of Operation.—*Shock.*—After an operation the nurse must watch for two things—shock and hemorrhage. *Shock* is great depression of the vital organs of the body produced through the nervous system, brought on by injury or surgical operation. The greater the injury and the longer the anesthesia, the greater the shock. The nearer the operation is to the trunk, the greater the shock. An operation on the abdomen or the amputation of a thigh is more severe and the shock is greater than operations on remote parts—a finger or a toe, for instance—because they are farther away from the heart and the nerve-centres.

Mental shocks, such as sudden joy, grief, or fright, may be as severe as those of the body. Age modifies shock. In old people shock is usually more severe and prolonged, especially if there is any organic disease. Children recover readily from shock if there has been very little loss of blood. Invalids and individuals used to suffering stand shock better than those whose nervous system is in a high degree of activity. Shock is modified by mental conditions; it is aggravated by fear, despondency, or depressed mental conditions of any kind, while it is diminished by cheerfulness, hope, joy, etc.

Two very important points to be remembered in case of shock and of hemorrhage are the temperature and the condition of the patient's mind. In shock the temperature at first is normal or very little below normal, and the senses are dull in proportion to the degree of shock present; in hemorrhage the temperature is subnormal and the mind is bright, keen, alert, and there is an anxious expression on the face, anticipating danger.

The symptoms of shock are a weak, rapid, and irregular pulse; sighing; rapid, irregular, shallow respiration; temperature normal or very little below; pale face with a pinched look; cold, clammy skin; the mind dull.

There may be involuntary movements of the bowels and urine through loss of muscular power; nausea and vomiting.

The treatment of shock consists in lowering the patient's head and elevating the arms and the foot of the bed, to promote the supply of blood to the vital centres; in applying heat to all parts of the body—the sides, between the legs, and to the feet—and a mustard plaster over the heart; in administering stimulants of whisky, brandy, or pure alcohol hypodermatically; in giving hot coffee or salt-solution by the rectum and very high up. An enema of ½ ounce of turpentine, a raw egg well beaten up, and 3 ounces of warm water is a powerful stimulant.

It must be remembered that in severe shock the function of absorption of the stomach and intestines is almost wholly suspended, and anything given by the rectum must be given very high up. When the respiration of the patient is fast failing, everything depends on maintaining the heart's action. To this end artificial respiration must be persistently practised. When the depression is deepened by hemorrhage, hypodermoclysis or intravenous infusion of normal salt solution must be resorted to. External heat is a powerful heart-stimulant, and often when the heart's action threatens to fail it may be restored by heat over the heart and by hot fluids taken into the stomach.

Strychnin is a powerful heart-stimulant, and, if at hand, $\frac{1}{26}$ grain should be given every half hour for four doses. Tincture of digitalis in 15-minim doses may be given every half hour for four doses. Ether alone, or mixed with an equal part of alcohol, has a more rapid stimulant action than alcohol. Recovery may be rapid or very slow; then we get what is called "reaction"—the pulse becomes more full, slow, and regular, the temperature rises, the body becomes warm, and a general improvement takes place.

Collapse is an extreme degree of shock, and almost invariably ends in death.

Hemorrhage may be caused by the slipping of a ligature or the displacement of clots, due either to restlessness or to reaction of the circulation, and it generally occurs within the first twenty-four hours after the operation.

The symptoms of internal hemorrhage are restlessness, thirst, faintness, an anxious expression, pale face, cold skin, frequent and irregular respiration, subnormal temperature, and a weak, rapid pulse (120–140), though there have been cases of internal hemorrhage in which the pulse has not gone above 94 beats to the minute, all the other symptoms being very marked.

Treatment of Hemorrhage.—The two things to be remembered in the treatment of hemorrhage are *position* and *pressure.* The part from which the blood is coming should be elevated and the patient's head lowered, to promote the supply of blood to the vital centres. If the nurse can apply pressure by putting her finger on the artery, she should do so, or she may plug the wound tightly with sterilized gauze or a compress, and hold it there until the arrival of the surgeon, who must immediately be summoned. The patient is to be kept perfectly quiet on her back. If symptoms of shock supervene, heat is to be applied to all parts of the body by warm blankets and hot-water bottles. Stimulants are to be given only if the pulse is failing. When the hemorrhage has been excessive, hypodermoclysis or intravenous infusion is often resorted to, the fluid that the body has lost being thus replaced.

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Hypodermoclysis is the subcutaneous injection of so-called normal or physiologic saline solution. It is employed generally to replace blood lost by hemorrhage, but also for many other purposes, such as to counteract different conditions of poisonings, as uremia, septicemia, etc. *Transfusion* is the intravenous injection of blood from another person—a method of treatment for hemorrhage formerly in vogue, but now fallen into deserved disrepute. The solution usually employed, and known as normal or physiologic saline (or salt) solution, consists of a 0.6 per cent. solution of sodium chlorid or common salt. It may be prepared by adding 1½ teaspoonfuls (a dram and a half) of common salt to a quart of boiling water. A solution a little stronger (0.75 per cent.) is probably better; this may be made by adding two teaspoonfuls (two drams) of salt to a quart of boiling water. The amount of solution usually injected varies from eight ounces to a quart or more. The parts used for injecting are the chest (beneath the mammary gland), the abdominal walls, the peritoneal cavity (known as intraperitoneal infusion and employed usually after abdominal operations), the arm, the thigh, the rectum (known as enteroclysis), and the veins (intravenous infusion). The instruments required for hypodermoclysis are a large needle (much resembling a hypodermic needle), rubber tubing, and a glass funnel, or a fountain syringe may be utilized. All the instruments must be rendered thoroughly aseptic, and the site of the injection must previously be sterilized. The solution should have a temperature of about 100° F.; it must be absolutely sterile, and it should be filtered before being used.

Continuous Enteroclysis (*Murphy Method*).—This is the slow injection of normal salt solution into the rectum in order that a large quantity of the fluid may be absorbed into the circulation. It is used in shock from serious hemorrhage, and in various surgical conditions in which large amounts of toxic substance are present in the circulation. The normal salt solution is diluted one-half. Instead of a colon-tube a rubber catheter is used, and this is introduced to the length of from 4 to 6 inches. The irrigation can is hung so as to be only a few inches above the level of the bed, and the fluid is allowed to flow very slowly. It should take from one and a half to two hours for the administration of half a gallon of the fluid. When all the fluid has been taken, the tube should be allowed to remain for a few minutes to prevent the expulsion of the fluid.

After-treatment of the Patient.—*Rest.*—The after-treatment of every surgical operation consists in perfect rest of the patient on the back for a certain length of time, to prevent the ligatures giving way and to lessen the likelihood of irritation of the stomach and vomiting.

The diet following operations is liquid until after the third day and the bowels have moved; then a light diet is given, such as cream toast, a soft-boiled egg, custard, buttered bread with the crust removed, cocoa, etc.; solid diet is afterward gradually resumed.

After-treatment in Amputations.—After the amputation of a thigh the stump must slightly be elevated on a pillow and a cradle be used to keep off the weight of the bed-clothes. A careful watch should be kept for hemorrhage. When a breast has been amputated, the arm is confined to the side by a bandage. The arm will become very tired; this tired feeling can be relieved by putting under the arm a small pillow, upon which it can rest.

After-treatment in Abdominal Operations.—After abdominal operations the patient cannot have anything by mouth for a certain number of hours. The extreme thirst can greatly be relieved by frequent bathing of the hands and face with alcohol and tepid water or with water alone. After operations on the abdomen it is well to place a roll under the knees. This roll will relax the abdominal muscles, and also remove the strain the patient would have to make to keep up the knees.

The external genitals are to be kept perfectly clean, the body is to be bathed, the bed and body-linen are to be kept sweet and clean, the teeth are to be brushed, and the hair is to be combed after the third day. Every want of the patient should be anticipated, and she should be made as comfortable and happy as possible. No visitors are to be admitted without the surgeon's consent. The mind of the patient is to be kept perfectly free from worry and excitement, and the whole atmosphere of the room should be bright, pleasant, and cheerful, no matter what trouble is going on outside. The nurse must not allow the patient to sit up until two weeks after the operation, as there is danger of a clot (thrombus) forming in a vein and being carried by the circulation to the pulmonary artery, causing sudden death.

Bladder and Bowels.—The catheter should be passed every six or eight hours if necessary, according to directions. The passage of gas by the rectum is a very good sign, as it shows that the bowels have regained their normal tone and that there is no obstruction.

Drainage-tube.—If a drainage-tube is in the abdomen and the care of it is left to the nurse, she must each time before draining thoroughly scrub and sterilize her hands. The syringe must be washed first with boiling water, the water being passed through it several times, then with gr every

corrosive-sublimate solution (1 : 1000), followed with boiling water; the syringe is then to be laid in the corrosive solution until the nurse has washed her hands a second time and unpinned the dressing covering the tube. The rubber tube attached to the syringe is passed down the centre of the drainage-tube to the bottom, then withdrawn a little, so that only the fluid will be drawn up, and not the tissues of the pelvis. The syringe piston is to be slowly and steadily drawn up. When removing the syringe the nurse should be careful that the blood does not drop on the dressing. The mouth of the tube is to be covered while the syringe is being emptied, and the corrosive and hot water are to be passed through the syringe before again putting it down the tube.

Some surgeons prefer *gauze drainage*, a piece of twisted gauze being put into the tube, that sucks up the fluid. This gauze is changed at stated intervals, and the tube is cleaned with a small piece of sterilized cotton or gauze fastened on the end of a pair of long fine forceps; then a fresh twist of gauze is inserted. With both these methods the amount of fluid drawn and its character must be reported. When the drainage-tube is to be removed, the nurse should observe the same precautions as she would for a dressing.

End

Hysterectomy.—The *after-care* of a hysterectomy, which is the complete removal of the womb, the ovaries being usually at the same time removed—hystero-oöphorectomy—either through the vagina (vaginal hysterectomy) or through the abdomen (abdominal hysterectomy), is the same as after any abdominal operation.

Septicemia.—Septicemia is blood-poisoning caused by the entrance of germs into the body through the agency of unclean hands (especially dirty finger-nails), instruments, sponges, towels, dressings, or the passing of a dirty catheter into the bladder, or in not washing the parts before catheterization. When septicemia occurs, it is generally the surgeon or attendants who must be blamed. In a very large majority of surgical cases the patient is in a healthy condition, and by a conscientious preparation of the patient for the operation, be it ever so simple, and of the room and of everything that will be used, the patient should and does make a good recovery. Should a healthy patient die of sepsis, then some one is always to blame; the germ was introduced by some one. Death may be due to some cause such as heart-disease, over which the surgeon has no control, the patient being willing to take the risk when consenting to the operation.

Septicemia (or septic peritonitis) may develop within several hours or several days after the receiving of a wound, either by operation or by accident. The earliest symptoms may be those of local disorder, such as the discharge of pus from a wound or manifestations of peritonitis. The septicemia (and pyemia) usually is manifested by an initial chill, high fever (103–104° F.), followed by severe perspiration. The appetite is lost, nausea and vomiting may occur, the patient emaciates rapidly, and becomes restless, sometimes stuporous and delirious. The chills recur at intervals, daily or on alternate days, and perspiration becomes profuse. The pulse is rapid, 120 to 140 per minute, and should the patient not improve, it becomes weak and thready. In the event of peritonitis the abdomen is distended, tender, and very rigid.

Treatment of Septicemia.—The nurse should send at once for the surgeon, and in the mean time try to move the patient's bowels with high enemata of turpentine, glycerin, oil, salts, melted vaselin, butter, lard, or molasses, or soap and water if there is nothing else at hand. The enemata should be given every two hours until the bowels are thoroughly moved or large quantities of gas are passed, because it is only by putting the bowels into an active state that one can overcome threatened paralysis of the intestines, and enable them to take up from the peritoneal cavity whatever blood-serum may be there. Stimulating enemata of whisky 1 ounce and warm water 2 ounces should be given every hour and a half. Brandy should not be used, because it is constipating. Strychnia, being a powerful heart-stimulant, is given in doses of grain $\frac{1}{25}$ every hour until its physiological effects are produced. It must be stopped at the first appearance of twitching of the muscles of the face or of the limbs, and stiffness of the neck. Vomiting may be relieved by washing out the stomach or by the application of a mustard plaster over the stomach. If after repeated efforts the bowels are not moved by the third day, the result is usually fatal. All the symptoms deepen. The surface of the body is cold and clammy; the face is pinched and sunken and has a dusky hue; the restlessness increases, also the thirst, which is very great, and to the last the patient calls for water, which is vomited immediately after being taken, but which it is cruel to withhold. The mind is usually clear to the end.

Surgical Disinfection and Materials.—*Antisepsis and Asepsis.*—*Antiseptics* prevent the growth of germs and putrefaction; a *disinfectant* destroys germs; and a *deodorant* destroys bad odors. Although an antiseptic may be a disinfectant and probably a deodorant, it does not follow that because a deodorant will destroy bad odors it will also kill germs. The best deodorant is pure, fresh air and sunlight; next, carbolic acid (which is both a disinfectant and a deodorant), charcoal, or lime.

Asepsis, or sterility, means freedom from septic germs. For instance, before an operation the hands and forearms are scrubbed with nail-brush, soap, and hot water to cleanse them and remove the germs; then the hands are entirely freed from germs by putting them in the different antiseptic solutions ordered by the surgeon, thus reaching the corners and crevices in the finger-nails and skin that the brush could not reach; in this way the hands and forearms are rendered thoroughly aseptic. The sheets, blankets, towels, gowns, instruments, sponges, and dressings are subjected to dry or moist heat, according to the orders of the surgeon, for a certain length of time. Everything to be used at the operation is made as thoroughly aseptic as possible, and only that which has been rendered aseptic must be touched by those assisting at the operation.

Antiseptics.—Some of the commonest antiseptics in use are corrosive sublimate, carbolic acid, permanganate of potash, creolin, thymol, boric acid, lysol, alcohol, peroxid of hydrogen, iodoform, and dermatol.

Corrosive sublimate and *carbolic acid* are the best disinfectants and antiseptics, but the corrosive cannot be used for the instruments or the clothing, on account of its discoloring properties; it is used in solutions of from 1 : 500 to 1 : 10,000.

Carbolic acid does not discolor clothing or instruments, it having this advantage over corrosive sublimate, but it irritates and benumbs the hands. The strengths of the solutions used are from 1 : 20 to 1 : 80. The acid is bought in the liquid form, having a strength of 95 per cent. To make a solution of 1 : 20, 1 : 40, 1 : 60, or

1 : 80, 1 ounce of the 95 per cent. solution is added to 20, 40, 60, or 80 ounces of water.

Both corrosive sublimate and carbolic acid are very poisonous; for this reason many surgeons have the parts washed with plain water after using these antiseptics, to prevent absorption. Symptoms of poisoning have been produced by the absorption of these drugs from surgical dressings.

The first evidences of carbolic-acid poisoning are a very dark coloration of the urine, giddiness, ringing or singing in the ears, headache, and lassitude.

The first symptoms of mercurial poisoning (corrosive sublimate) are fetid breath, excessive salivation, a metallic taste in the mouth, swollen and spongy gums, with a dark line at their upper margin, loosened teeth, and swollen tongue. If the use of these drugs is persisted in, all these symptoms deepen. On the appearance of any of these symptoms the dressing should be removed.

Creolin is not so poisonous as the two above-named drugs, but it cannot be used for instruments, because of its yellow color, which prevents their being seen at the bottom of the tray. For cleansing the hands or other parts a 5 per cent. solution is used. To make a 2 per cent. solution 2½ teaspoonfuls of creolin are added to 1 pint of water.

Boric acid is an unirritating and non-poisonous antiseptic; a 4 per cent. solution is generally used.

Lysol as an antiseptic is much objected to by some surgeons on account of its soapy properties. When used for instruments it makes them slippery. The strongest solution used is 2 per cent.

Permanganate of potash is an antiseptic used to cleanse the hands and other parts before operation, followed by a solution of oxalic acid to remove the stain.

The permanganate stains everything with which it comes in contact; it also causes pain and burns if used in very strong solutions. The strength of the solution generally used is from 20 to 60 grains of the crystals to the pint of warm water.

Oxalic acid will remove permanganate stain from the skin. This method is very irritating to the skin, but the irritation can in a measure be avoided by immersing the hands and forearms afterward in lime-water. Oxalic acid also removes permanganate stain from white goods, and hydrate of ammonia will remove the stain from black goods.

Condy's fluid, which contains 16 grains of permanganate-of-potash crystals to 1 ounce of water, is both a disinfectant and a deodorant.

Iodoform is an antiseptic that may be absorbed into the system if applied to raw surfaces and cause iodoform poisoning. The symptoms of absorption are headache and loss of appetite, followed by rise of temperature, rapid and feeble pulse, and restlessness; a bright-red eruption appears on the face and limbs, and there may be retention of urine.

Peroxid of hydrogen, which is the most expensive antiseptic now in use, destroys the germs of pus. When poured into a wound an effervescence takes place which ceases only when the wound is rendered sterile, and which carries off any shreds of tissue in the wound that cannot easily be reached. It is also applied to the throat in diphtheria to destroy and remove the false membrane. Peroxid readily decomposes by coming in contact with metals. If used as a spray, a glass atomizer must be employed; the bottle must not be kept in a bright light, nor should the mouth of the bottle remain unstoppered any longer than necessary.

Absolute alcohol is an antiseptic used for cleansing the skin; it is also used for sterilizing silk, catgut, and silkworm-gut sutures and ligatures.

The best disinfectant is heat—either dry heat (baking) or moist heat (steam). Water of a temperature of 212° F. will kill most germs on contact.

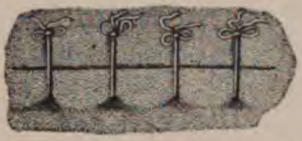


FIG. 52.—Interrupted suture (Bernard and Huette).

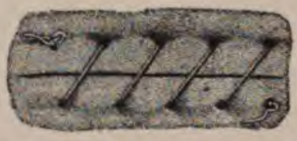


FIG. 53.—Continued or glover's suture (Bernard and Huette).

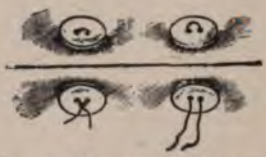


FIG. 54.—Button-suture (Bryant).

Suturing.—Sutures, which are used to bring the edges of a wound together, are of silver wire, silk, catgut, silkworm gut, etc. The *interrupted suture* (Fig. 52) is made by passing catgut or silk through the skin from one side of the wound to the other; then both ends are drawn together and tied in a double knot. The *continuous suture* (Fig. 53) is the ordinary over-and-over stitch from one end of the wound to the other. The *button suture* (Fig. 54) is made by passing wire across the bottom of the wound, bringing out the ends about 1 inch from the edge of the wound, and securing each end with a button.

Ligation.—Ligatures, which are used for tying large blood-vessels, are of heavy twisted silk, silver wire, silkworm gut, or catgut.

Sterilizing Sutures.—The catgut is soaked for twelve hours in corrosive-sublimate solution (1 : 1000), and afterward, for twenty-four to forty-eight hours, in oil of juniper.

The spools are then transferred to covered glass jars containing sufficient absolute alcohol to completely cover the catgut. The alcohol is changed every two weeks. Other methods of sterilizing have their advocates, and should the matter be left to the nurse, she should obtain specific directions from the surgeon.

Gauze Sponges.—The sponges most commonly used are gauze pads, the cut edges being folded over and loosely hemmed, and little gauze bags, made by wrapping cotton waste in squares of gauze, the corners being brought together and stitched firmly at the top. Gauze sponges are never employed more than once. Those used in operations are afterward destroyed; those not used are re-sterilized, placed in sterilized towels, and deposited in covered glass jars which are not uncovered until called for at an operation.

In these days of antiseptic surgery the surgeon generally attends to the preparation of the sutures, ligatures, and sponges: when this duty is left to the nurse it is a clear proof that the surgeon has great confidence in her, for septic material may as readily be conveyed into the wound by dirty sponges, sutures, and ligatures as by the hands, instruments, and dressings.

IV. ACCIDENTS AND EMERGENCIES.

1. SURGICAL ACCIDENTS.

Fractures.—A fracture is the breaking of a bone into two or more pieces. A *simple* fracture is a single break *without* injury to the flesh. A *compound* fracture is a single break *with* injury to the flesh. A fracture is said to be *comminuted* when the bone is broken into several pieces. An *impacted* fracture is one in which one fragment is driven and fixed into another. A *green-stick* fracture is one in which the bone is bent and partially broken. It occurs chiefly in young children.

A fracture is said to be *complicated* when there is other injury, such as a lung punctured from a broken rib, or a nerve or a blood-vessel injured, or when other bones or joints are injured. Fractures are also transverse, longitudinal, or oblique.

Signs of a Fracture.—The signs of a fracture are loss of power, pain, swelling, crepitus (which is the grating made by the rubbing of the ends of the broken bone together, and which may be both heard and felt), distortion, and deformity.

Bone-repair.—The repair of a broken bone is very interesting. Following the fracture, the ends of the bone become surrounded by and embedded in extravasated blood and certain products of inflammation. These gradually become thickened or solidified ("organized") and infiltrated with lime salts, forming what is called the "callus." This callus, which is an imperfect bony tissue that cements and unites the broken ends of the bone, hardens, and is gradually converted into more or less perfect bone. The process of repair is generally fairly complete in about six weeks; but it may be prolonged to many months, and in some cases it may not occur at all.

Management of Fractures.—The management of a broken bone until the arrival of a surgeon consists in securing perfect rest. If a leg be broken, the patient should be laid on a stretcher, a door, or a shutter; a splint may be improvised with an umbrella, a walking-stick, a thin board, books, newspapers, or a coat rolled up and tied to the side of the leg with handkerchiefs above and below the seat of fracture. If none of these articles are at hand, then both legs may be tied together. The patient's clothes must be removed from the sound side first. The clothes should not be torn, but should

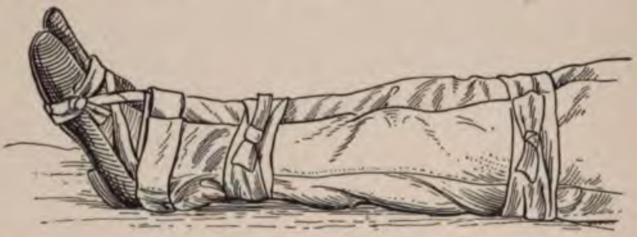


FIG. 55.—Treatment of a fracture of the leg without splints (after A. S. Morrow).

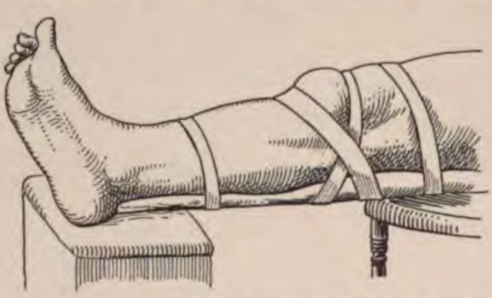


FIG. 56.—Treatment of a fracture of the patella (after A. S. Morrow).

be opened at the seams, which can easily be sewed up again. To remove the boots, one hand should be placed at the ankle to steady the limb, and with the other hand the boot may be removed. If the foot is injured or if there is much pain, the seam of the boot must be cut open. Garters must be removed before the stockings, and the suspenders unfastened in front and behind before the trousers are removed. Work should be quiet and steady, as there is danger of converting a simple into a compound fracture through the broken ends of the bone running through the skin. If there is shock, heat is to be applied and stimulants given.

The bed is to be made in the usual way, with a board underneath the mattress to prevent it sinking in the middle. A pillow should be placed around the limb and fastened with safety-pins, and a sand-bag should be placed on each side of the limb to keep it in position. Sand-bags are made of stout ticking, cotton, or any material that is sufficiently fine to prevent the sand from escaping into the bed. They should be long enough to extend from below the foot to above the knee, and be about 6 inches wide. The sand must be thoroughly dry, and the bags be filled about three parts full. The limb should be elevated on pillows; the toes must point upward.

Before the arrival of the surgeon the nurse must get the part and the patient as clean as possible. She should have ready cotton or gauze bandages of different widths (from 3 to 6 inches); sheet-wadding bandages (about 4 inches wide), which, if a plaster-of-Paris bandage is applied, will be put on first to protect the skin; sheet wadding; plenty of warm water; towels; corrosive-sublimate solution (1 : 1000) or carbolic-acid solution (1 : 20); sheets to cover the surgeon and to protect the bed and the floor. If sheets cannot be had, newspapers may be used for the bed and floor and a large apron for the surgeon.

A patient with a broken leg is generally in bed from four to six weeks, and one with a broken thigh from eight to ten weeks. Bed-sores must not be allowed to form, and will not form if proper care be taken, unless the spine is broken or the nerve-supply is injured, in which case they will form even with the best of care.

A broken *arm* after being dressed (Fig. 57) should be put in a wide sling (Fig. 58) made with a large handkerchief folded diagonally, the ends tied around the neck, the point turned up above the elbow and fastened with safety-pins.

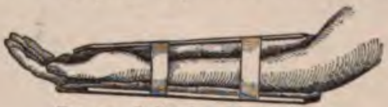


Fig. 57.—Splint for a fractured arm.

For a broken *jaw* the mouth should be closed firmly and bandaged with a folded handkerchief or a four-tailed bandage (Fig. 59).

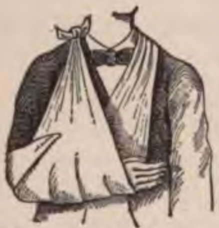


Fig. 58.—Handkerchief sling for a broken arm.

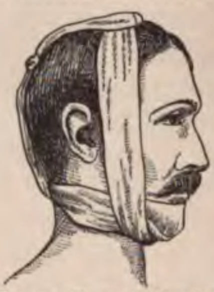


Fig. 59.—Four-tailed bandage for the jaw.

When the collar-bone is broken a pad of cotton should be put under the arm and the arm be bound across the chest.

Dislocations.—A dislocation is the displacement of the bone or bones of a joint by some external violence, such as a fall or a blow. A *compound* dislocation is one in which there is a wound connecting with the joint. The patient should be put to bed on his back, the part bandaged, and ice applied to prevent inflammation.

Dislocation of the *lower jaw*, which is sometimes caused by yawning, can generally be overcome by the nurse wrapping her thumbs in a handkerchief and placing them in the patient's mouth on the lower back teeth and pressing down and back, when the bone will generally slip into its place (Fig. 60).

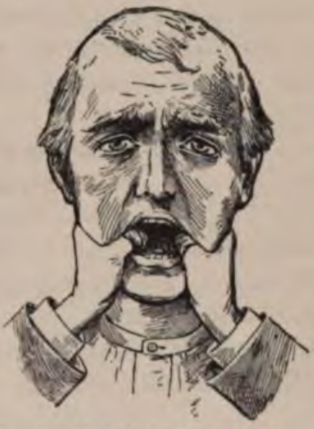


FIG. 60.—Method of reducing a dislocation of the jaw (Makins).

Sprains.—A sprain is the wrenching of the ligaments of a joint; there may also be rupture of the fibres and blood-vessels. The limb should be placed first in moderately hot water, and the temperature gradually be raised until it is as hot as the patient can bear, the limb remaining in the water for about half an hour; or hot fomentations may be applied and the limb be placed in a comfortable position. Strapping with adhesive plaster strips (see p. 201) is useful in treating sprains.

Surgical Dressings.—Surgical dressings are divided into *dry* and *moist;* the latter is commonly called a "water-dressing." Ordinary cheese-cloth (prepared by being boiled for two hours in water to which has been added some washing-soda, after which the cloth is wrung out and washed in plain water to remove the soda, and again boiled for two hours in plain water, then taken out and dried), absorbent cotton, or the ordinary cotton-wool, pads of graduated compress, iodoform gauze, and permanganate gauze, are all used as dressings, though in an emergency old sheets, linen or cotton, cut to the desired size and sterilized in an oven, make very good sterilized dressings.

For a *water-dressing* several thicknesses of gauze are wrung out of the ordered hot solution, applied over the part, and covered with two layers of sheet-cotton and a single piece of oil-silk or oil-paper, the whole being kept in place by a gauze bandage.

A *dry dressing* consists in covering the wound with several thicknesses of sterilized gauze, over which is placed two or three layers of sheet-cotton, both dressings being secured by a bandage. Many surgeons first powder the wound with iodoform or a preparation of boric acid and iodoform or dermatol powder, to prevent irritation and chafing and to absorb the moisture.

Tents are small strips of rolled gauze and are used to keep wounds open for the escape of pus.

Management of Surgical Dressings.—Before beginning to do a surgical dressing the nurse should see that everything is ready. She should try to remember the favorite dressings for the different surgeons: this is sometimes rather difficult; still, after seeing a dressing done once she should, if quick and intelligent, know what will be needed the next time. Besides the dressings there will be needed a basin of warm corrosive-sublimate solution (1 : 1000) for the hands, a basin of carbolic-acid solution (1 : 20) for the instruments, towels, and a pail or a basin for the soiled dressings and discharges. If asked to prepare a wound for the surgeon's inspection, the nurse must wash her hands with soap and water and corrosive-sublimate solution, having first covered any cut or scratch. She should then remove the bandage and dressing, which, if it adheres to the wound, may be wet with corrosive-sublimate or carbolic-acid solution, after which it will easily come off. The nurse should wash *toward*, not away from, the wound, and cover it with a cloth wet in carbolic-acid solution until the surgeon is ready to inspect it. To remove a plaster begin at each end and work toward the wound. Putting one hand on the skin and pressing firmly down will prevent the peculiar tearing feeling of which a patient will complain. The marks of the plaster can be removed with alcohol, ether, turpentine, or soap and water, care being taken that the solution used does not enter the wound.

Bandages.—Bandages are to retain dressings and splints in position, and also to apply pressure. Almost any kind of household muslin or gauze may be used for a bandage. Gauze is the best, on account of its elasticity; it can be applied to any irregular surface, and it is not necessary to reverse a gauze bandage. Shaker-flannel cut on the bias is used where greater strength is required and to make firm pressure.

Rubber Bandage.—Rubber or elastic bandages are to prevent hemorrhage and to prevent or reduce swelling.

The rubber bandage is put on from below upward, without reverses. It must not be drawn too tight nor be left on too long, or paralysis from pressure on the nerves of the part may result, or the circulation will be interfered with or entirely cut off. Rubber bandages should be rolled up quite loosely and be kept in a dark, moist place, or they become brittle and break into pieces.

Roller-bandages.—Roller-bandages are from ½ inch to 6 inches wide and from 2 to 8 yards long. The selvage must always be removed, the bandage rolled very tightly and evenly by hand or on a regular bandage-roller, and the loose threads of the edges trimmed off.

In applying a bandage the nurse should hold the bandage in one hand, and, taking the loose end in the other hand, should so apply it to the part to be bandaged that the outer surface may be against the skin, and that the bandage will lie close to the limb (Fig. 62). All bandages must lie smoothly and their pressure be uniform. A bandage should always begin from the *inner side* of a limb, and thus bring the turns to its outer side (Fig. 61).

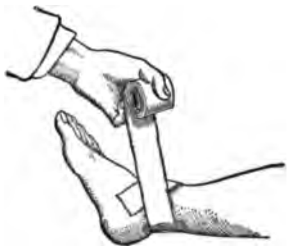


FIG. 61.—Bandaging an ankle.

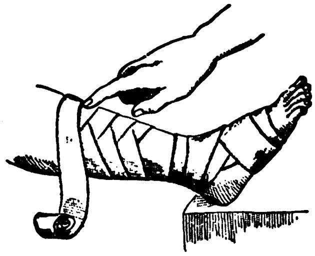


FIG. 62.—Bandaging a leg, showing method of reversing the bandage.

A bandage must not be put on too tightly, as there is considerable danger of inflammation or of gangrene through the circulation being interfered with or being entirely cut off. It should fit snugly to the part, and an equal amount of pressure should be maintained. Inflammation and gangrene (death of a part) are often caused by tight bandaging. The fingers or the toes must be left exposed, so that one can see if the circulation is carried on all right. They should feel warm to the touch, and the color should disappear upon pressure and reappear when the pressure is removed. If they are cold, numb, swollen, or have a livid appearance, the bandage should be loosened. If in compound fracture the patient has pain, the pulse and temperature should be taken and the surgeon be notified. The bandage or dressing must not be removed unless the splints are pressing unevenly or displacement has occurred, or the fingers and toes are congested or swollen and there is danger of gangrene.

When taking off a bandage it should be rolled up loosely in the hand as it is unwound, thereby keeping it all together.

The simplest forms of bandaging are the spiral and the figure-of-8 bandage.

The *spiral* bandage consists in covering a limb by a series of spiral turns, each turn overlapping the one below for about one-third its width. In most limbs the enlargement at the upper part prevents the application of a spiral bandage without making a reversed turn in it. Without this turn only one edge of the bandage would come in contact with the part, the other would stand freely away from it. The reverses are made by placing a finger on the lower edge of the bandage to hold it firmly in position, and folding the bandage downward upon itself (Fig. 62). The turns should not be made over the prominence of a bone, and where possible should be made on the outer side of a limb. At the moment of making the turn the bandage should be held quite loose, and after the turn has been made it can be pulled as tight as necessary. In making the turn the hand should be held a little above the limb, and care be taken not to unroll more bandage than is necessary.

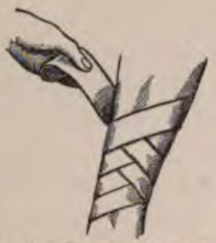


FIG. 63.—Figure-of-8 bandage.

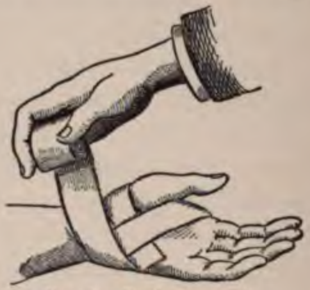


FIG. 64.—Bandaging a wrist.

The *figure-of-8* bandage (Fig. 63) is the one most frequently used; it is easier to apply and it fits better. It is applied alternately above and below, each succeeding turn overlapping its neighbor by one-third its width.

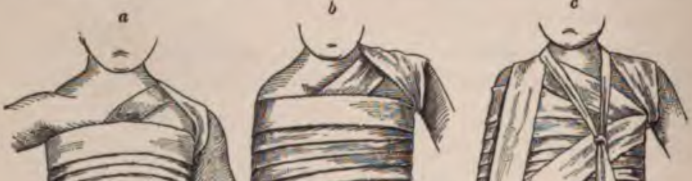


FIG. 65.—Desault's bandage: *a*, first roller; *b*, second roller; *c*, third roller.

The figure-of-8 bandage needs very few reverses; still, they must be employed should occasion require them.

The *Desault* bandage (Fig. 65) is applied in the treatment of fracture of the clavicle.

Divided Bandages.—The *four-tailed* bandage (Fig. 66) is useful for dressings about the face (Fig. 59), the scalp (Fig. 74), and the knee. A *many-tailed* bandage (Fig. 67) is applied to a limb which requires frequent dressing, and consists of a piece of linen or muslin the length of the limb and wide enough to go one and a half times around. The muslin is torn from each side, in strips about 2 inches wide, to within about 3 inches of the middle. The central part of this bandage is placed under the limb, and the tails are drawn to the front over the dressing and tied; beginning at the lowest pair, the ends are brought up and the next pair tied over them.

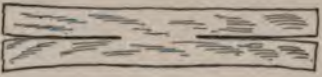


FIG. 66.—Four-tailed bandage.

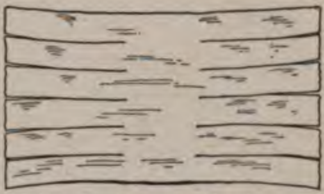


FIG. 67.—Many-tailed bandage.

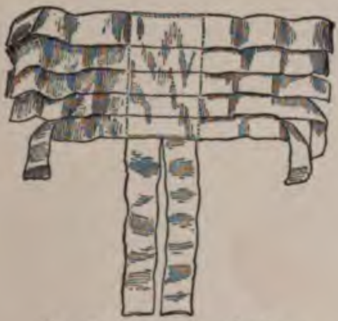


FIG. 68.—The Scultetus bandage.

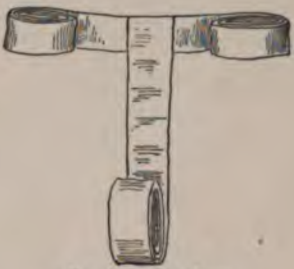


FIG. 69.—T-bandage.

The *Scultetus* bandage (Fig. 68) is used for bandaging the abdomen, and is made by taking two pieces of flannel or of cotton, each 1 yard long and 4 inches wide, the two pieces being placed 4 inches apart; across them are sewed five other pieces of the same length and width, each piece being overlapped by the one above it by one-half its breadth. This bandage is placed under the patient's back, the cross strips are folded over the abdomen from below upward, and the lower ends of the vertical strips are brought up between the thighs and pinned to the front of the bandage. This keeps the bandage from wrinkling and retains it in position.

T-*bandage.*—The T-bandage (Fig. 69), which is to secure dressings on the anus or the perineum, is made of two strips of bandage, each about 5 inches wide. To the middle of one strip, which is to go around the waist, the end of the other strip is sewed, and is passed between the thighs and fastened in front to the waist bandage with safety-pins.

Handkerchief Bandages. — Handkerchief bandages (Figs. 70–75), which are very useful in emergencies, consist of large handkerchiefs or of pieces of linen or muslin, each about 32 inches square. The *triangle* is made by cutting the square diagonally, so that two

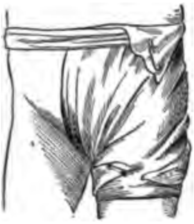


FIG. 70.—Handkerchief bandage for perineum and hip.

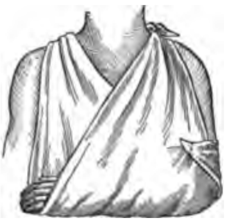


FIG. 71.—Three-cornered bandage for arm.

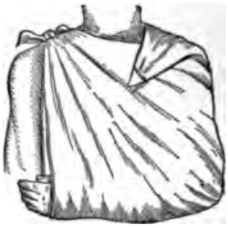
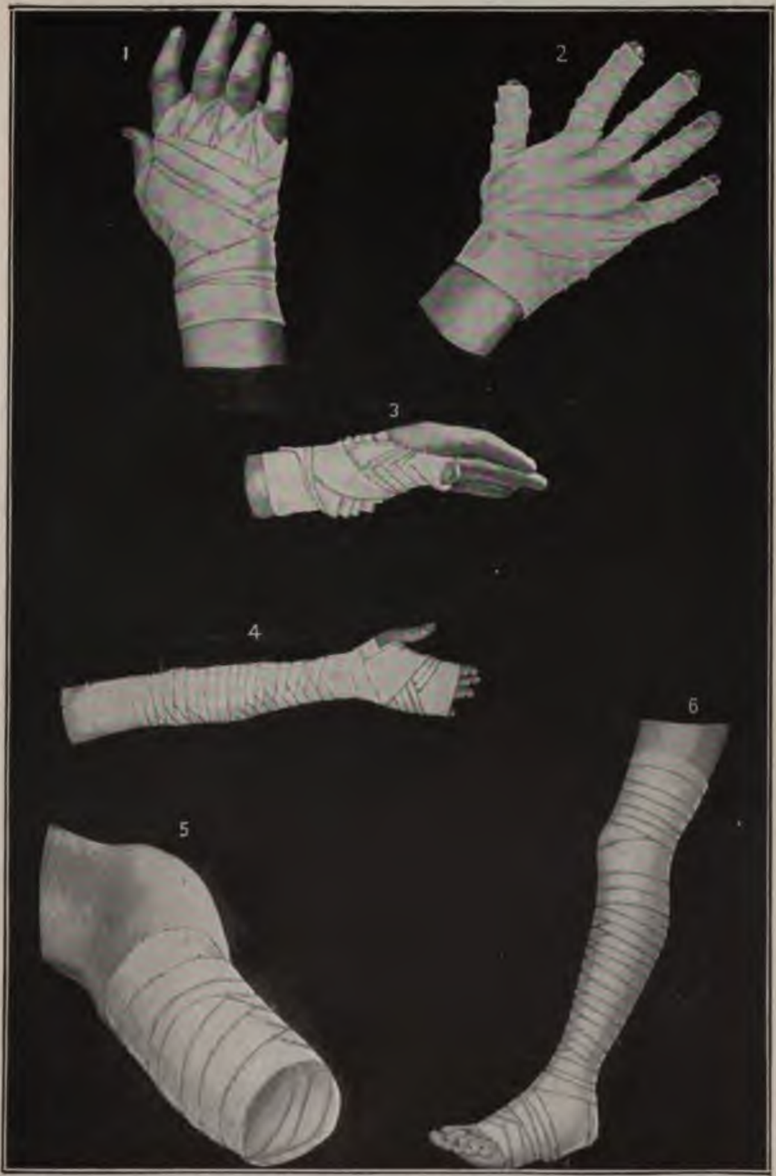


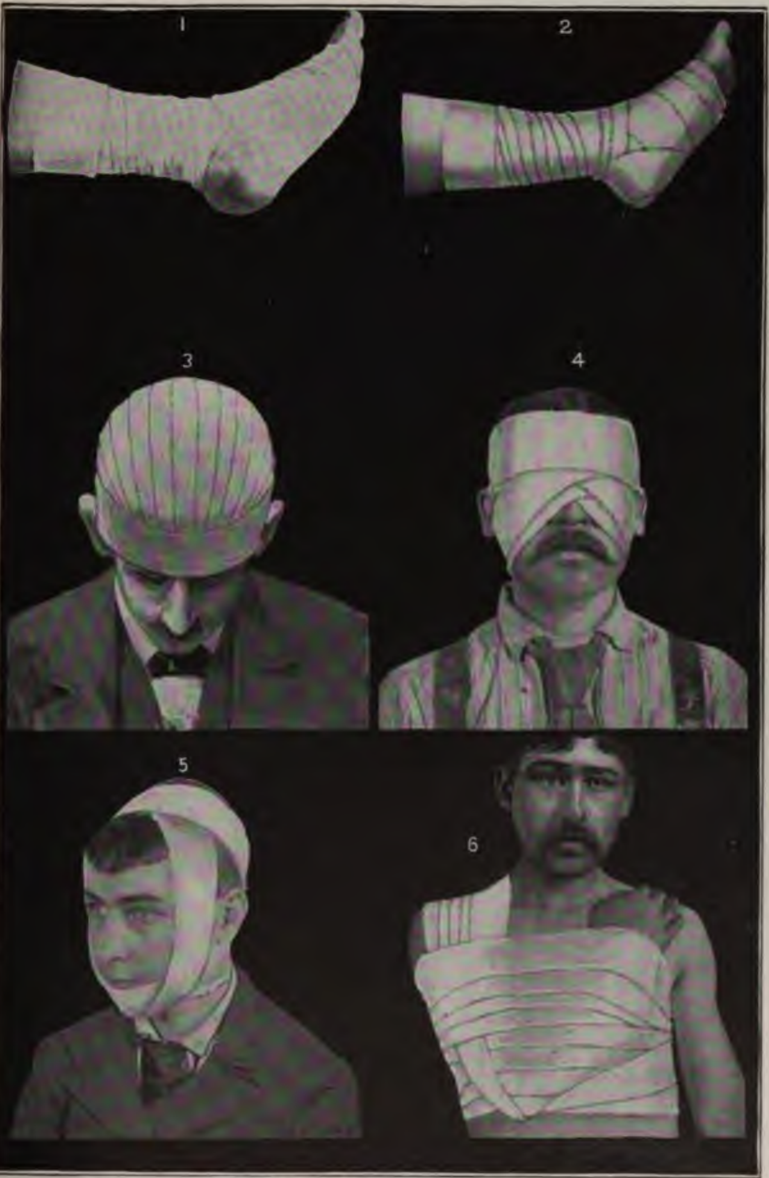
FIG. 72.—Four-cornered bandage for arm.

BANDAGING. PLATE I.



1. Demi-gauntlet bandage; 2. Gauntlet bandage; 3. Spica of the thumb; 4. Spiral reverse bandage of the upper extremity; 5. Recurrent bandage of a stump; 6. Spiral reverse bandage of the lower extremity (from *An American Text-Book of Surgery*).

BANDAGING. PLATE 2.



1. Figure-of-8 bandage of the ankle; 2. Method of covering the heel; 3. Recurrent bandage of the head; 4. Crossed figure-of-8 bandage of both eyes; 5. Barton's bandage, or figure-of-8 of the jaw; 6. Velpeau's bandage (from *An American Text-Book of Surgery*).

three-cornered pieces is the result. A *cravat* is made by folding in the sharp corner toward the base of the triangle until a bandage about 3 inches wide is formed.

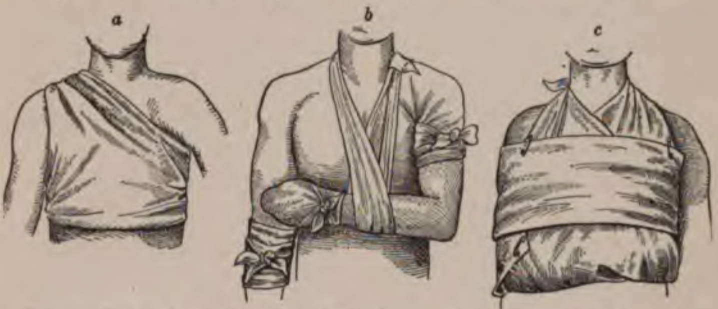
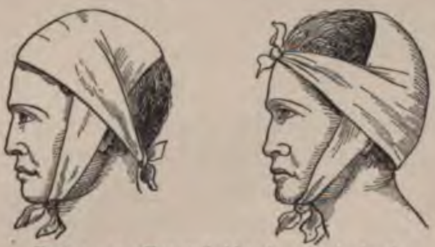


FIG. 73.—Various forms of handkerchief bandages: *a*, for the chest: *b*, for the shoulder, hand, and arms; *c*, double bandage to prevent motion of the arm.

Muslin cut in the form of a Maltese cross is used to apply a dressing snugly over an amputation-stump.



FIGS. 74, 75.—Four-tailed bandage for the head.

Plates 1 and 2 give a very good idea as to the various applications of roller-bandages.

begin

Plaster-of-Paris Bandage.—Plaster-of-Paris bandages, which are intended to prevent all motion in a part, are made by sprinkling gauze or cotton bandages with dentists' plaster of Paris; these bandages are loosely rolled and kept in a covered jar or a tin box to exclude the air.

When needed the rolled bandages are placed in warm water to which has been added a little salt, to help the plaster to set more rapidly; they remain in the water until the water-bubbles cease, when they are wrung out by holding the bandage at each end, thus preventing the plaster coming out at the sides, which happens if the bandage is taken in the hand and squeezed in the middle. A little plaster cream should be prepared, to be applied over the bandage after its application to fill up any crevices. *The cream must be constantly stirred or it will gradually thicken and become hard.* The limb is first enveloped in a thick layer of sheet wadding, then the prepared bandages, after having been thoroughly wet, are applied in the usual manner. After the bandage has been applied the dressed limb is exposed to the air until the bandage is dry and hard; after this the limb is placed between sand-bags, covered with the upper bed-sheet, and the weight of the blankets is supported by a cradle.

Another method of making the plaster bandage is to shake the plaster into cold water until the mixture is of the consistency of cream; the plain muslin or gauze bandage is unrolled in a basin of water, re-rolled in the basin containing the plaster cream, and then applied; but this method is only resorted to when the powdered bandages are not prepared. The cream must be constantly stirred or it will gradually thicken and become hard.

If the bandage is applied to the upper part of the thigh, where it is likely (especially with children) to get wet with urine or soiled with fecal discharge, it may be kept clean by giving it a coat of varnish.

Silicate-of-soda Bandage.—A silicate-of-soda dressing consists in protecting the limb as in the case of a plaster-of-Paris bandage, after which bandages saturated with silicate of soda are applied. Another way is to bandage the limb with muslin bandages and paint each layer with the silicate. From three to five layers of bandage are generally applied. The disadvantage of this dressing is that it takes too long for it to dry thoroughly; it is readily removed with water.

Starch Bandage.—A starch bandage is made by mixing starch in the way it is ordinarily prepared for laundry purposes, applying a bandage over the limb, and painting the starch over the bandage; strips of pasteboard are soaked in the starch, laid along the limb for support, and another starch bandage is applied over the pasteboard.

Chalk-and-gum Bandage.—A chalk-and-gum bandage is applied in the same way as the starch bandage. The mixture is prepared by taking equal parts of gum-arabic and precipitated chalk, and adding boiling water until the admixture becomes of the consistency of thick cream. This mixture dries more quickly than starch, which takes two or three days to dry, and the bandage is also stouter. The plaster-of-Paris bandage has the advantage over all other bandages in being more durable and in the rapidity with which it can be applied and with which it sets.

Strapping with strips of adhesive plaster is employed to secure support and uniform pressure in sprains and for producing immobility of the parts in fractured ribs and in pleurisy.

Strapping of joints is done for the treatment of sprains of the ankle, knee, wrist, and elbow. Strips of adhesive plaster about one inch wide are firmly applied in sufficient number to cover the joint, each strip overlapping the previous one and extending about two-thirds around the joint (Figs. 76, 77).

Strapping of the Chest.—Strips of adhesive plaster about two inches wide and long enough to reach from the spine to a little beyond the middle line of the chest are employed. One end of the strip is fastened to the skin over the spine behind and is stretched forward around the chest to the middle line in front. Each

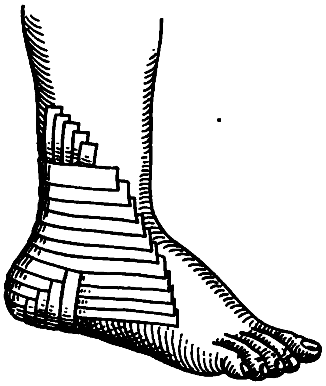


FIG. 76.—Strapping an ankle-joint (after A. S. Morrow).

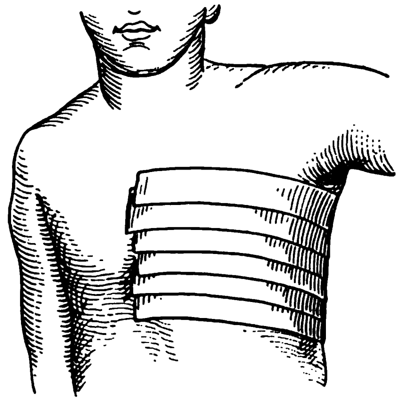


FIG. 77.—Strapping the ribs (after A. S. Morrow).

strip is applied in succession in the same manner from below upward, overlapping about one-third of the previous strip, until the side of the chest is covered.

Splints.—Splints are used to keep a broken bone in its proper position. A splint should fit above and below the seat of fracture, care being taken that it does not press upon any prominent part. There are a large variety of splints which are adapted for every part of the body, but perhaps the commonest are the *coaptation* splint, which can be adjusted to any part, and the plaster-of-Paris splint.

Splints may be improvised with cardboard, gutta-percha, leather, felt, tin, wood, an old hat, a coat rolled up, an umbrella, a walking-stick, or newspapers. The cardboard, leather, or gutta-percha is first soaked in hot water, after which it will easily mould to the part; such splints are perforated to allow the escape of perspiration. They should be covered with a compress or with sheet wadding of three or four thicknesses, brought smoothly over the edges and stitched firmly or held in place with strips of adhesive plaster.

Plaster-of-Paris Splint.—A plaster-of-Paris splint is made by taking flannel, linen, or muslin (folded to three or four thicknesses) to envelop the limb, and stitching through the middle of the folds after the manner of stitching the leaves of a book. The folded material is soaked in the plaster-of-Paris cream, laid on a board, opened out, and applied over the limb, which is first covered with sheet wadding. Plaster of Paris must be kept covered, as it absorbs moisture from the air; if it is moist, it can be dried in the oven.

This bandage is readily removed by making a line with a knife and dropping water along the line from a medicine-dropper or a spoon to soften the plaster, after which the bandage can be cut with scissors and removed.

Extension.—Extension (Fig. 78) is used to prevent the shortening of a limb. To prevent the extension-apparatus gradually pulling the patient's body to the foot of the bed, the foot of the bed must be raised on two blocks of wood (8 or 10 inches high), thus obtaining *counter-extension* by the weight of the patient's body, everything being taken away from under the patient's head except a small pillow. The materials required for extension are two strips of adhesive plaster 3 inches wide and long enough to reach from above the knee to below the foot, leaving a loop. A piece of wood (4 inches long and 1 inch thick), having a hole pierced through its centre, is inserted in the loop beneath the foot and fastened in place. The adhesive-plaster strips are placed along the sides of the leg to above the knee, and further secured by a bandage. One end of a stout cord is passed through the hole in the wood and knotted. The cord is carried over a pulley attached to the foot of the bed and

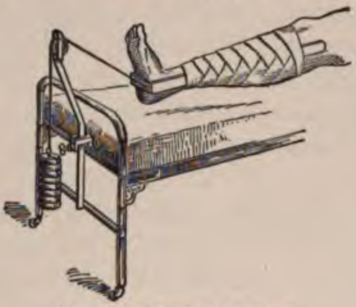


FIG. 78.—Extension apparatus.

fastened to a weight. Smoothing-irons, bricks, or sandbags may be used as weights: these must first be weighed, so that the surgeon will know the number of pounds he is putting on.

Wounds.—A wound is defined as a solution of continuity of the tissues—a separation of the continuous parts by violence. There are different kinds of wounds—incised, contused, lacerated, punctured, gunshot, or poisoned. An *incised* wound is a cut made with a sharp instrument. *Contused* and *lacerated* wounds are made with a blunt instrument, the tissues being torn and bruised. A *punctured* wound is made with a pointed instrument, such as scissors, a nail, etc. *Gunshot* wounds are caused by firearms. A *poisoned* wound is caused by an agent which carries with it into the wound a poison. Wounds may also be aseptic or septic. An *aseptic* wound is one which is free from and is preserved from all poisonous bacterial products. A *septic* wound is one in which the bacteria are present, they having gained access either through injury and exposure before treatment or during the treatment.

Healing of Wounds.—Wounds heal by first intention or by second intention. Wounds heal by *first intention*, or primary union, when the edges are brought together and rapidly heal without granulation or suppuration. Wounds heal by *second intention*, or granulation, when the edges are separated and the wound is large and deep, and the granulations, which are soft, bright-red elevations, fill up the wound from the bottom and sides. Occasionally the granulations grow too rapidly and project above the surface of the skin. This condition is commonly called "proud flesh," which is removed either with nitrate of silver or with the knife. Granulations are sometimes pale and flabby and have to be stimulated.

Occasionally a wound healing by granulation will heal from the top instead of from the bottom and sides. When this process of repair occurs the wound is kept open with gauze packing, a little of which is removed each day as the wound heals up from the bottom. Only an incised wound heals by first intention; other wounds heal by granulation. *Healing under a blood-clot*, of which we so often hear, occurs when an aseptic blood-clot remains in a sterile wound. The blood-clot gradually becomes organized and serves as a scaffolding for the new tissue which is thrown out from the surrounding parts. When the wound heals the surface clot breaks up, is brought away with the dressings, and a firm scar is seen. If the wound has become infected, the clot may be swept away with the pus, and the wound then heals by granulation.

Treatment of Wounds.—In the absence of a physician steps must be taken to arrest the hemorrhage (see p. 210), to clean the wound, and to apply a temporary dressing. Remember to clean the hands thoroughly before touching a wound, and to bring nothing in contact with it which is not sterile or at least clean. If there is hair about the part, it should be cut away or shaved for a distance of several inches from the cut edges. The skin should then be washed with soap and water and followed by some antiseptic solution, such as carbolic acid (1 : 100) or corrosive sublimate (1 : 1000). All splinters, pieces of glass or clothing, or other foreign bodies should be carefully removed. For temporary dressing simply cover the wound, without handling it, with a piece of gauze, linen, or lint, and apply a bandage.

Suppuration, which is a process following infective inflammation, consists in the formation of pus. Should the condition not result in recovery, but the infective or septic material become absorbed into the system, erysipelas—a local condition, or septicemia, a general condition of blood-poisoning, or pyemia, septicemia with the general formation of abscesses—may result.

Erysipelas.—Erysipelas is an acute specific febrile disease due to a germ known as the streptococcus, that gains access to the body through a wound, frequently by means of unclean instruments, sponges, dressings, or hands. The symptoms are an initial chill, malaise, high temperature, and a peculiar swelling, redness, and inflammation of the skin and subcutaneous tissues. There is usually a sharp line of demarcation between the inflamed skin and the surrounding healthy skin.

Pyemia.—Pyemia is blood-poisoning together with the formation of abscesses. The *symptoms* are severe chill, followed by profuse perspiration, rise of temperature and pulse, nausea, vomiting, and diarrhea, and pain at the point where the abscesses are forming.

The treatment for both these diseases consists in isolating the patient, in sustaining the patient's strength with nourishing food and stimulants, and in observing thorough asepsis. Each surgeon has his own method of treatment, and his directions must faithfully be carried out.

Tetanus.—Tetanus is an infective disease which almost always originates from wounds, particularly those of the extremities. The infecting germ may enter a wound, large or small, at or a few days after the time of injury. The earliest *symptom* is stiffness of the neck, after which the muscles of the face and jaw become rigid, so that the patient cannot open his mouth. This condition is commonly called "lockjaw." Gradually the other muscles are affected by spasms, which are very severe, and the face has a peculiar grinning expression. If the body is bent forward, the condition is called "emprosthotonos;" if the head is stretched backward and the spine arched, it is called "opisthotonos."

The *treatment* of tetanus consists in keeping the patient perfectly quiet in a darkened room, care being taken to disturb him as little as possible. Nourishment, stimulants, and medicine may be given by the rectum if necessary. Morphia may be given subcutaneously. The bowels must be kept open, and retention of urine may be relieved by catheterization. The number of spasms must be counted and the degree of their severity be noted. The pulse is rapid and weak, and the temperature is slightly elevated. The exhaustion is extreme, due to loss of food and sleep. An acute attack may result in death from asphyxia or exhaustion in from three to five days, the mind, as a rule, being clear to the end.

Gangrene is the mortification or death of a part, produced by the stoppage of the circulation in that part. It results from obstruction to an artery or a vein; it may follow severe frost-bites or a severe form of inflammation in a weakened part; it is common in diabetes. The germs destroy the vitality of the part, and spread until they meet with parts strong enough to resist their action; then a line of demarcation is formed. There are two forms of gangrene, moist and dry.

Moist gangrene may be produced by an accident when the injury is extensive, the part devitalized, and the return of venous blood obstructed or cut off. The *symptoms* are first pain and intense burning in the part; red skin-coloration which changes to a purple or a greenish-black; there is a fetid odor; the part is swollen and soft; the skin is raised in blisters; there is a watery discharge;

and the line of demarcation marks the living from the dead part.

Dry gangrene, or "senile gangrene," as it is called, is due to an impaired condition of the circulation in parts at a distance from the heart, such as the toes, where the circulation is not very vigorous, or to a diseased condition of the arteries, whereby the supply of arterial blood is cut off.

The symptoms are numbness and tingling in the part; the color of the skin gradually changes to a dark red, then to purple, and finally the part destroyed becomes black, dry, wrinkled, and resembles in appearance the limb of a mummy. When the progress of the disease is arrested a line of demarcation is formed. The depressed and lowered condition of the patient must be met with stimulants and nourishing food, and thorough antisepsis be observed.

Abscess.—An abscess is a collection of pus occurring in any of the tissues or organs of the body, and is one of the terminations of inflammation. It may be acute or chronic (cold), circumscribed or diffused.

Boil.—A boil (furuncle) is a localized inflammation of the skin and subcutaneous tissues, frequently about a sebaceous gland, forming a small painful swelling with pus-formation and ending in the expulsion of a necrosed centre or "core." A *blind boil* is a non-suppurating swelling that gradually subsides, the contents being absorbed.

Carbuncle.—A suppuration of the subcutaneous tissue, most generally situated under the thick skin at the back of the neck, is a carbuncle. It is distinguished from a boil by being larger and of longer duration, in having no central core, in having several points of suppuration, in being less defined and prominent, but more extensive in its sloughing.

The treatment is surgical, antiseptic dressing, and good nourishing food.

Ulcer.—An ulcer is an open sore, attended by discharge, generally due to certain difficulties obstructing the healing process.

Fistula.—A fistula is an abnormal opening between an internal part and the surface of the body, or between two organs of the body, such as the bladder and vagina or the vagina and rectum.

The treatment is surgical; fresh air, good food, and tonics are essential.

Sinus.—An opening upon the surface of the skin, ending in the cavity of an abscess, is a sinus. It is generally caused by the failure of the abscess to heal, by the presence of a piece of dead bone, by inability of the walls of the cavity to come together, or by a diseased condition of the walls of the cavity.

2. COMMON EMERGENCIES.

Under this head will be considered the emergencies apt to be met with in every-day life.

Hemorrhages.—It is impossible to be too thoroughly prepared to meet the emergency of hemorrhage, as the care and responsibility of the patient rest entirely upon the nurse until the arrival of the surgeon.

Hemorrhage may be *external* or *internal.* The bleeding may come from the arteries, the veins, or the capillaries. *Arterial* blood is bright red, and bursts out in spurts with each beat of the heart. *Venous* blood is dark; the stream is steady, flowing to the heart. *Capillary* blood is of an intermediate shade, and oozes. Capillary hemorrhage is dangerous only when a number of capillaries give way at one time.

Hemorrhage is also primary, recurrent (intermediate), or secondary. *Primary* hemorrhage is that which takes place when an incision is made. *Recurrent* or *intermediate* hemorrhage is that which takes place during the first twenty-four or forty-eight hours after an operation, and which is due to the force of the circulation of the blood after reaction has set in, to the displacement of clots through restlessness, or to the slipping of a ligature. *Secondary* hemorrhage takes place between the first day and the complete healing of the wound, about the time the ligatures or sloughs separate. It is generally caused by diseases of the walls of the arteries, by a ligature not being strong enough or being tied too loosely, or by the too rapid absorption of a catgut ligature, or by sepsis, the germs eating their way through the walls of the blood-vessels, which become so thin that they cannot stand the force of the blood pumping through them, and finally burst. Children do not stand the loss of blood well, but they rapidly recover as a rule. Adults in health stand the loss of blood well; old people do not, neither do they quickly recover.

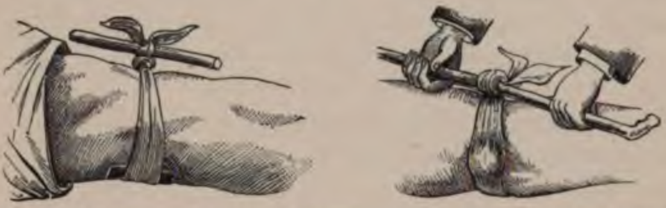
Symptoms.—The symptoms of hemorrhage are restlessness, faintness, demand for air, weak and rapid pulse, subnormal temperature (96° or 97° F.), anxious expression, pale face, cold extremities, feeble, sighing respirations, sometimes a mist over the eyes, and a roaring in the ears.

Treatment.—The treatment of hemorrhage consists of position and pressure. The bleeding part should be elevated to promote the supply of blood to the vital centers; pressure may be applied with the finger on the artery, or the wound may be plugged with sterilized gauze or with a handkerchief; morphin (gr. ¼) may be given to secure rest and quiet, stimulate the heart, and contract the blood-vessels. The patient is to be kept perfectly quiet, to allow the blood to coagulate in the vessels, and plenty of fresh air should be given. Alcoholic stimulants must be given very cautiously, as they excite the heart's action and increase the hemorrhage; hence they must not be given without orders from the surgeon, unless the pulse is very weak and indicates heart-failure. If hemorrhage should occur from the *stump* of a limb after the amputation, the nurse should elevate the part and make firm pressure with her finger on the artery until the surgeon arrives.

Flexion, or the bending of a limb, is another way to stop hemorrhage. A pad of cotton is put in the joint—the hollow of the elbow, under the knee, or in the groin; against this pad pressure will be made when the limb is bent. Ice and very hot water are also used in hemorrhage, heat being the better, as it stimulates the blood-vessels and causes the blood to coagulate, while ice paralyzes the vessels, stopping the hemorrhage for a while; but when the ice is removed and reaction from the cold sets in, and the circulation is restored, the blood-vessels dilate wider than before and the bleeding begins again. Moreover, with the application of ice, which is seldom clean, there is the danger, if it be put on a raw surface, of introducing germs into the system. Fainting has a tendency to check hemorrhage, as it permits the blood to coagulate.

Venous hemorrhage is checked on the side of the wound that is away from the heart. The limb should be elevated slightly and pressure applied.

A *tourniquet* made of a piece of compress or a knotted handkerchief tied and twisted with a stick, the knot or some round smooth object being over the artery (Figs. 79 and 80), will stop the circulation to a part, but it cannot remain on longer than half an hour or the part may die. Position, pressure, and morphin are the best remedies for hemorrhage. The first two can always be had, and morphia sustains the heart's action, secures rest and quiet, and contracts the blood-vessels.


FIGS. 79, 80.—Impromptu tourniquets for compressing an artery with a handkerchief and a stick.

The other methods of stopping hemorrhage—torsion, ligation, cauterization, acupressure—belong to the surgeon.

When much blood has been lost the patient suffers greatly with thirst, which is often extreme on account of the amount of fluid that has been taken from the body. For this reason there may be given to drink, in small quantities, cold water, which will relieve the thirst and also make up for the amount lost by resorption. The patient should be fed well and often and in small quantities.

Bleeding from the *palm of the hand* may be controlled by clasping a clean handkerchief and holding the hand high above the head.

Hemoptysis.—In hemorrhage from the *lungs* (hemoptysis) the blood is bright red, and frothy from its admixture with air. In treating hemoptysis the head and shoulders are elevated and an ice-bag or an ice poultice is applied to the chest; crushed ice may be given the patient to swallow. Equal parts of vinegar or lemon-juice and water, given in teaspoonful doses, or a quarter of a teaspoonful of dry salt, will contract the blood-vessels. Rest and quiet will be obtained by the administration of morphin (gr. ⅛), chloral (gr. x), or bromid of potassium (gr. xx).

Hematemesis.—Bleeding from the *stomach* (hematemesis) is treated in the same way as that from the lungs. The blood in this case is vomited, is of a dark-red color, and contains particles of food. The feces are of a very dark color, through the blood having passed into the intestines. It is always well to examine the nose and throat, because the bleeding may not come from the stomach, but from the nose, the blood having passed down the throat into the stomach.

Epistaxis.—For *nosebleed* (epistaxis) the head and arms should be elevated, and pressure with the fingers should be made on the nostril from which the blood is coming, or a small piece of lemon or a small piece of cotton wrung out of vinegar and inserted will contract the blood-vessels. The patient should not blow the nose, as it will disturb the formation of clots. Ice may be applied to the back of the neck and to the forehead.

Burns and Scalds.—Burns and scalds are the same in effect. A burn is caused by dry heat—fire or heated metals; a scald is caused by moist heat—heated fluids or steam—and is apt to be extensive, because the fluid spreads over a larger surface than a burn; a burn, however, is deeper. Burns are of three degrees:

1. Inflammation without blisters, or destruction of the epidermis without penetrating the true skin.

2. Inflammation of the skin resulting in the formation of blisters, the latter caused by an outpouring of the water of the blood, that lifts the outer skin from the true skin.

3. Partial or complete destruction of the nerves and blood-vessels of the part. Their vitality is destroyed.

A burn of the *first* degree may result in death if two-thirds of the body is burned, because, although there is only a mere reddening of the skin, the action of the skin is lost, consequently the power of perspiration or excretion is lost; extra work is thus thrown upon the kidneys, which become inflamed, and death may occur from nephritis, which is inflammation of the kidneys.

Burns of the *second* degree may end fatally if extensive, because the superficial blood-vessels are destroyed; consequently, more blood is driven to the internal organs of the body, which become very much congested, and acute inflammation sets in, which may result in death. Death from burns of the second degree may occur from shock, exhaustion after long-continued suppuration, which follows the separation of the sloughs, also septicemia or tetanus (lockjaw).

The result of a burn of the *third* degree is nearly always fatal in the old or the young, and is determined by the part affected and by the age and health of the patient. Burns of the abdomen, the head, and the chest are more severe than those of the extremities, because they are nearer the vital organs.

Shock is always present in burns of the first degree, though not so great as in those of the second and third degree, and the reaction after shock may result in inflammation of any of the vital organs.

Pain is severe in slight burns, because the nerve-endings are exposed; it is less severe in deep burns in which there is total destruction of the part.

Edema of the Glottis.—Edema, or *dropsy of the glottis*, is caused by the inhalation of steam or the drinking of scalding liquids. Edema is a pouring out of the watery part of the blood into the tissues, and the effusion may increase with great rapidity. Death by suffocation may occur within a very short time. *The symptoms* of edema are gradual loss of voice, difficulty in breathing, and blueness of the surface of the body (cyanosis) from insufficient oxidation of the blood, gasping respirations, and a flickering pulse. Tracheotomy or intubation is generally performed. There may be inflammation without edema, and this may develop into bronchitis and pneumonia.

The treatment of burns and scalds consists in first attending to the shock by the application of heat to the body, or, if possible, in giving a hot bath (temperature 100° F.), the administration of stimulants (alcohol or black coffee), and the application of a mustard plaster over the heart. The clothing is to be removed gently, being cut if necessary. If the burn is slight and no blisters have formed, the part is to be dressed with a saturated solution of ordinary baking-soda or dusted with either baking-soda, flour, or starch, and the air excluded, because air is an irritant. If blisters have formed, they should be opened, the fluid being allowed to run on to a piece of cotton, and then dressed with either carbolic-acid solution (1 : 40), sodium-bicarbonate water, sweet oil, vaselin, zinc ointment, or Carron oil (equal parts of linseed oil and lime-water), and the air excluded.

A raw surface should not be dusted with flour, starch, or any other powder, because these substances harden and form crusts, which are painful to remove. The dressing should be removed only when really necessary, on account of the extreme pain, and only one part at a time should be exposed and dressed. If the dressing adheres to the part, it should not be pulled off, but should be wet, so that it will come off without causing the patient much pain. The bed should be made up with old sheets and old pillow-cases. The patient's strength should be maintained with a nutritious diet and stimulants, and the thirst relieved with crushed ice. The bowels should be kept open, and the nurse should watch for retention of urine.

Complications of Burns and Scalds.—Some of the complications are delirium, meningitis, ulceration of the duodenum (the first part of the small intestine near the stomach), which may result in perforation of the intestine and cause peritonitis, inflammation of the lungs and kidneys or intestines, and retention or suppression of urine. Great distortion or deformity is often caused by contraction of the healing skin. The scars are densely white. To prevent deformity, the parts are put in splints in the best possible position; skin-grafting is often resorted to, and in some cases amputation is performed. end

Sunstroke.—The *symptoms* of sunstroke are a temperature of from 105 to 112° F., sometimes higher, a flushed face, stertorous breathing, and unconsciousness. The patient should be put into a cold bath and rubbed with ice. If at the seaside, he may be carried to the beach and put in the water; the head may be kept cold by bathing it, or by the application of handkerchiefs wrung out of the water. If a cold bath is impossible, the patient may be douched with cold water from a hose-pipe or from pails, and cold cloths be kept on the head. Enemata of ice-water are very good. The cold-water treatment must be continued until the temperature has fallen, after which the patient should be put to bed, and, if there is depression, be given stimulants moderately. Should the temperature begin to rise, the above treatment should be renewed.

Heat-exhaustion.—Heat-exhaustion is caused by too long exposure to a very high temperature; the blood leaves the brain and the surface of the body, and goes to the large blood-vessels of the abdomen. *The symptoms* are those of shock. *The treatment* is the same as that for shock: hot bath if possible, or heat applied to all parts of the body; stimulants of alcohol or strong coffee.

Lightning-stroke.—For a lightning-stroke the treatment is the same as that for shock.

Fainting.—The head of a person in a faint should be lowered and the feet raised, the blood being thus sent back to the brain. Plenty of air, the clothing loosened about the neck and chest, and a little cold water dashed over the face, are usually sufficient to restore consciousness. A method often practised is to place the patient on a chair, and to push the head down between the knees, the hands hanging down by the side. The patient is kept in that position until the face becomes red, being then able to rise and walk about. This position restricts the abdomen and shuts off the blood-supply to the lower extremities, the blood going to the brain. Strong ammonia should not be held to the nostrils of an unconscious patient, as it is very irritating. The pulse should be watched, and if consciousness does not soon return, heat should be applied and a physician be sent for. Little can be done for loss of consciousness from heart-failure, beyond stimulating a flagging pulse, until the arrival of medical assistance.

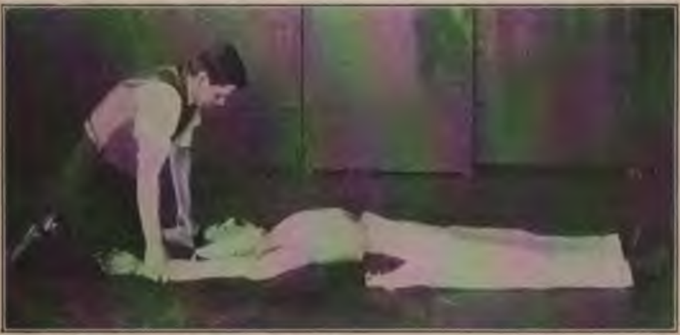


FIG. 81.—Artificial respiration: first movement, inspiration (Murray).

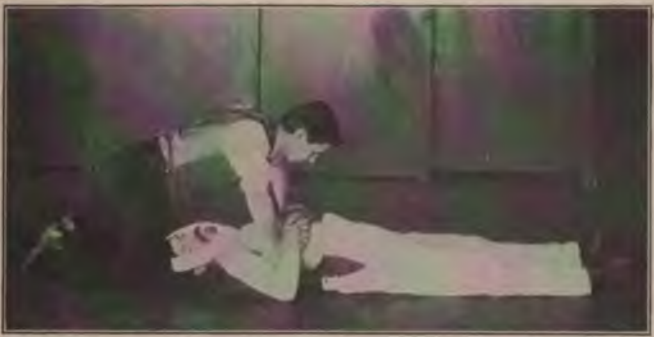


FIG. 82.—Artificial respiration: second movement, expiration (Murray).

Drowning.—In asphyxia from drowning, if the person when taken from the water is breathing, he should be removed, if possible, to a near-by house, and put into a hot bath, which will act as a stimulant; or heat may be applied directly over the heart and other vital organs, the head and shoulders be raised, stimulants given, and the body briskly rubbed. This can be done until the arrival of a physician. In all cases of *suffocation* the throat must be cleared, so that fresh air can reach the lungs.

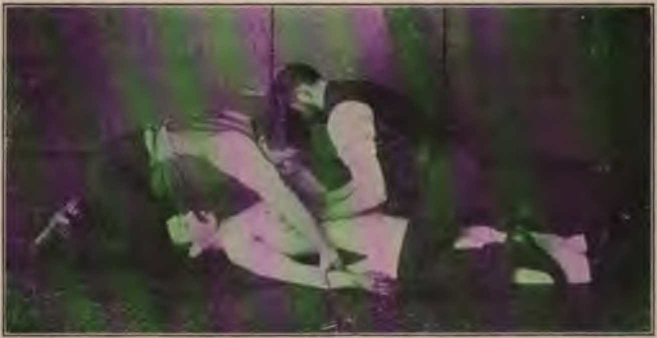


FIG. 83.—Artificial respiration: expiration, assistant exerting pressure on the chest (Murray).

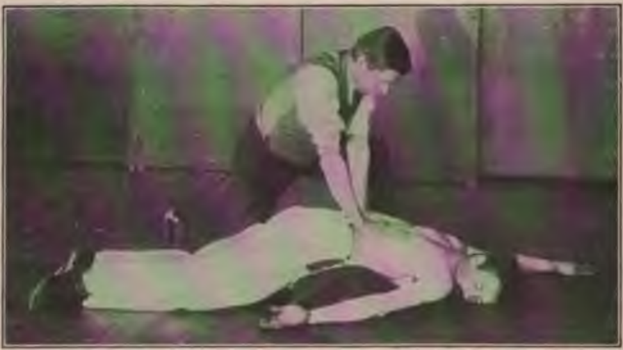


FIG. 84.—Expressing water from the stomach and lungs (Murray).

Artificial respiration is the imitation, as nearly as possible, of natural breathing. We breathe from sixteen to eighteen times a minute; this number of chest movements must not be exceeded, or the lungs cannot expand to fill thoroughly with air nor contract to expel the air.

To produce artificial respiration in case of drowning or of suffocation, the patient's clothing is first removed and the body is quickly dried. The mouth, the throat, and the nose should be cleared and the tongue be pulled forward to facilitate access of air to the windpipe; a roll, a pillow, a rolled-up coat, or a piece of wood should be placed under the shoulders. The arms near the elbows should now be grasped and be swept around horizontally, away from the body, until the hands meet over the head (Fig. 81); this movement raises the ribs and expands the chest as in inspiration; the arms should then be brought down to the sides, the elbows meeting almost over the pit of the stomach (Fig. 82); pressure is then made against the chest-wall, producing contraction of the chest; the arms are to be held in the latter position a few seconds, and then the movements are repeated. Twelve or fifteen respirations will be sufficient. The mouth must be kept open and the tongue be held forward.

Accidents from Fire.—If clothing catches fire, the person should be thrown down and rolled in a rug, shawl, blanket, or coat. Any one may at some time be compelled to pass through sulphur fumes or smoke, and it can be done by holding a wet towel, a large wet handkerchief, or a wet cloth over the nose and mouth. Some persons who have been through this experience never retire without first placing at their bedside a large handkerchief or a towel and a bowl of water, in case this emergency should arise.

Accidents from Electricity.—Great caution should be observed in approaching a person who has received an electric shock and is still in contact with the current. The current must be turned off before touching the body. Medical aid must be got at once. In the meantime friction and external heat should be applied to the extremities. Give artificial respiration if breathing has ceased. The burns are to be treated like those of fire (p. 216).

Retention of Urine.—Retention of urine is due to the patient's inability to pass urine, owing to shock, paralysis, hysteria (commonly known as *hysterical retention*), or other causes, which, if not relieved, may result in rupture of the bladder or uremic poisoning through resorption. The patient should be put into a hot bath if possible, which will act as a stimulant, relieve the pain, contract the muscular coats of the bladder, and also produce perspiration. If the bath is impossible, a hot poultice or fomentation should be applied over the bladder, or catheterization may be practised and a simple enema be given.

Head-accidents.—For all accidents to the head, the part is to be bathed with warm water and firm pressure with a clean compress be made until the arrival of a physician.

Concussion of the brain is the sudden interruption of the functions of the brain brought on by severe blows on, or by other injury to, the head. In the simple form of concussion the patient is partly insensible; the pupils are contracted, and the face is pale. In a few moments he may regain consciousness; there is nausea and vomiting and headache. In a severe case of brain-concussion death may very soon occur.

Compression of the brain is due to tumors, to depression of the skull from fracture, and other causes. The *symptoms* closely resemble those of apoplexy. In both these injuries, until the arrival of a physician, who should be sent for at once, the patient should be placed in bed with the head slightly raised; the room should be darkened and cold applied to the head. If there is shock, heat is to be applied, but stimulants are not to be given without orders from the doctor.

Cuts and Bruises.—For a cut or a bruised finger, the part is to be washed thoroughly with an antiseptic solution or with boiled sterilized water, then with dilute alcohol or with hamamelis (witch-hazel), and the part bound up with clean cotton and a bandage. For treatment of wounds, see p. 206.

Foreign Bodies.—A foreign body *in the ear* should be removed at once. If the obstruction be an insect, the patient should lie on the side with the affected ear upward, the aural canal being straightened by pulling the auricle upward and slightly backward; the ear is then filled with warm water or with olive oil. The insect will then float to the top and fall out. No other liquid should be put into the ear without the consent of an ear specialist. The ear is a very delicate organ, and will be injured by unskilful treatment. If the foreign body is a bean or any object likely to swell, the ear must not be syringed. If the obstruction is a button, a stone, or cotton, one may try to syringe it out; but nothing else should be attempted, or the obstruction may be pushed farther in. A foreign body in the *nose*, if it can be seen, may be removed with a bent hair-pin or with forceps.

An *obstruction in the throat* may be removed by the drinking of water, the swallowing of a piece of bread, or by a hard blow between the shoulders; if these measures fail, an emetic of mustard and water or of salt and water may be given.

A foreign *body in the eye* may be removed by having the patient look down; a pencil or some similar thin body is then placed across the upper lid, and the lashes are seized and the lid turned over; the exposed particle is then wiped off.

Insect Bites and Stings.—Insect or mosquito bites are treated by bathing the part with dilute or pure vinegar or with a solution of carbolic acid (1 : 40).

Dysmenorrhea.—Dysmenorrhea, or painful menstruation, very often calls for prompt treatment, which consists in hot mustard foot-baths, rest in bed, the application of hot flaxseed poultices, or turpentine or mustard fomentations to the lower part of the abdomen, and a hot-water bottle to the back and one to the feet. Drinks of hot ginger-tea or of gin will increase the circulation. It may be mentioned that painful menstruation is often the result of tight lacing: the abdominal organs are crowded down upon the womb, the bladder, and the rectum, and the womb is forced down out of its normal position, the free escape of the blood thus being prevented. Exposure to cold during menstruation is another cause. A normal menstruation should be painless.

Vomiting.—To relieve vomiting a mustard plaster or an ice poultice over the stomach is very good. If the vomiting is caused by constipation, a Seidlitz or a Rochelle powder will generally stop it.

Flatulence.—Flatulence is relieved by 10 drops of the oil of peppermint or 5 drops of the oil of turpentine on sugar every three hours, or by drinking very hot water.

Intoxication.—Ordinary intoxication requires only rest and sleep. If the patient is exhausted, an emetic may be given. He should then be covered warmly. For the diagnosis of intoxication from apoplexy, see p. 282.

Toothache.—Toothache may be relieved by oil of cloves, oil of peppermint, or creasote applied on cotton and inserted in the cavity of the tooth.

Insomnia.—Insomnia, or sleeplessness, considered as an emergency, may be relieved by the application of heat to the abdomen, and to the feet if they are cold. Should the patient sleep the first few hours of the night, then awake, and remain so during the early morning hours, a light meal, such as a cup of hot cocoa and a cracker, or even a glass of hot milk, will induce sleep by drawing the blood-supply from the brain to the stomach, and at the same time the blood will be replenished by substances formed in the process of digestion, that have a soothing effect. Wakefulness is increased if there is a light in the room, because the brain cannot rest unless there is darkness: to procure this the room should be darkened as much as possible and a handkerchief folded over the patient's eyes.

Sunburn.—Sunburn is painful, and may be relieved by any kind of oil or by a wash made of sodium bicarbonate, and by excluding the air.

Burns by Acids and Alkalies.—A burn by an *acid* should be treated by pouring over the burn a solution of sodium bicarbonate and water or plain water to dilute the acid; the part is then dressed as for an ordinary burn. For a burn by an alkali, for instance, quicklime, an acid is applied, such as lemon-juice or vinegar. For burns of the *eye* with an acid or an alkali the eye should be washed immediately with warm water to dilute the substance and to prevent its being absorbed; vaselin or any of the oils then should be applied.

Frost-bite.—Frost-bite is due to extreme cold. The vitality of the part is lowered and the circulation in it ceases. Exposure to intense cold may cause death, owing to the action of the skin and the superficial blood-vessels being cut off; as a consequence, the internal organs are very much congested, which condition is followed by congestion of the brain, causing drowsiness, stupor, and coma, and ending in death.

The treatment of frost-bite consists in rubbing the part with snow or with ice-water, which will gradually dilate the contracted blood-vessels and start up the circulation in the part. The patient must be kept in a cold room. As the temperature of the part and of the body rises, the patient should be rubbed gently with equal parts of alcohol (or vinegar) and water, and the temperature of the room be slowly increased; or the patient may gradually be removed to a warmer room. The part should be exposed to the air for a while and then covered. Hot drinks and stimulants are to be given if necessary.

The return to heat must be gradual, as the sudden reaction of the circulation in the part may result in intense inflammation and gangrene. Should inflammation set in, cloths wet in equal parts of alcohol (or vinegar) and water may be applied.

Chilblains.—Chilblains are caused by exposure to cold, followed by a sudden return to heat. *The treatment* is the same as that for frost-bite. Patients after one attack should wear woollen stockings and gloves.

3. ACCIDENTAL POISONING.

Poison Defined.—A poison is a substance which, when taken into the body, produces either disease or death. Any substance causing death when taken into the stomach is a poison. Poisons may also enter the circulation through the broken skin.

Classification and Action of Poisons.—Poisons are divided into two classes—irritants and narcotics. The *irritant* poisons act on the stomach and bowels, and the symptoms of all such poisons are generally the same. Coming in contact with the lips, mouth, throat, and stomach, they produce a burning sensation and give rise to vomiting and pain in the stomach and abdomen, the pain being increased upon pressure, and by purging. The effects of the poisons are chiefly upon these organs, which they irritate and influence. After all irritant poisons, demulcent drinks, such as flaxseed tea, white of eggs, glycerin, sweet oil, starch-water, or warm milk, should be given to soothe the inflamed mucous membrane. *Narcotic* poisons act upon one or more parts of the nervous system, producing headache, giddiness, numbness, stupor, and paralysis, and often convulsions and death. They have not the burning taste of irritants, and rarely give rise to vomiting and purging.

What to Do in Case of Poisoning.—The first thing to do in all cases of poisoning is to ascertain what kind of poison has been taken, either from the symptoms produced or from the vomited matter. If this detection is impossible, the stomach is to be emptied—that is, if the drug has been taken by mouth—to prevent the poison being absorbed; the *antidote* (a remedy to counteract the effect of the poison) is then to be given. If the poison has been absorbed, medicines are given to counteract its effect on the temperature, the respiration, or the circulation. *Vomiting* may be induced by giving mustard and warm water, salt and warm water, tepid oil and water (a tablespoonful to a cup of water), warm water, or by running the finger down the throat, or by tickling the throat with a feather. Vomiting is generally easier if the stomach is full of food or of fluid. Should the stomach be empty, a quantity of fluid should be given before the emetic.

When emetics are administered, they should be given quickly and not more than half a pint at a time, or the walls of the stomach may become paralyzed through over-distention. After vomiting, the patient should drink plenty of milk or water, and the bowels should be cleared, in case the poison has entered the intestines.

A few of the most common poisons and their *antidotes* are the following:

Irritant Poisons.—*Carbolic Acid.*—Any soluble sulfate, such as sulfate of magnesium (Epsom salts) or sulfate of sodium (Glauber's salts), as a chemical antidote; wash out the stomach with a solution of a soluble sulfate or with dilute alcohol; fixed oils; demulcent drinks, such as flaxseed tea; counteract the collapse with hot applications to the extremities, heart-stimulants, such as strychnin, caffein, etc.

Carbonic Acid.—Removal of patient from the room; artificial respiration; cold douche to the face and chest; inhalations of ammonia, amyl nitrite, or oxygen; enema of strong coffee; bleeding and hypodermoclysis; friction; stimulants, etc.

Oxalic, Acetic, and Tartaric Acids.—Calcined magnesium, carbonate of calcium, chalk, lime-water or plaster or whitewash scraped from the wall (in an emergency); stomach-tube; mucilaginous and demulcent drinks; heart-stimulants.

Prussic Acid (*Hydrocyanic Acid, Cyanid of Potassium*).—Usually the patient dies promptly; if he lives for a half-hour he is likely to recover. Use emetics or the stomach-tube; dilute hydrogen peroxid or potassium carbonate and follow with sulphate of iron; artificial respiration; hypodermoclysis and intravenous infusion of normal salt solution; stimulants.

Mineral Acids (*Sulphuric, Nitric, Hydrochloric, and Phosphoric*).—Magnesium, whiting, chalk, lime-water, sodium carbonate or bicarbonate; milk, white of egg, plaster or whitewash scraped from the wall (in an emergency); demulcent drinks, stimulants; and morphin to relieve pain.

Alkalies (*Ammonium, Caustic Soda, Caustic Potash*).—Acids, such as vinegar, acetic acid, tartaric acid, citric acid, lemon-juice mixed with water or some bland oil; fixed oils; white of egg; milk; morphin to relieve the pain.

Arsenic and Paris Green.—Stomach-tube or emetic; the chemical antidote, the freshly prepared hydrated oxid of iron, made by precipitating the solution of the tersulfate of iron (or the tincture of the chlorid of iron) with ammonia. Mix and strain, and give the precipitate; magnesium; demulcent drinks; morphin and stimulants if necessary.

Corrosive Sublimate.—Stomach-tube or emetics; white of egg (chemical antidote); milk or flour and water; atropin; stimulants.

Ergot.—Stomach-tube or emetics; nitroglycerin or amyl nitrite; stimulants.

Iodin.—Stomach-tube or emetics; boiled starch or boiled flour paste; demulcent drinks; morphin and stimulants if necessary.

Phosphorus.—Stomach-tube or emetics; sulfate of copper, as emetic and chemical antidote; water containing small amount of oil of turpentine; stimulants; no oil or fats, as they favor absorption of the phosphorus.

Ivy Poisoning.—The intolerable itching may be relieved by plain water, baking soda and water, lime-water, lead-water and laudanum, grindelia robusta, etc.

Narcotic Poisons.—*Aconite.*—Stomach-tube or emetics; stimulants—ammonia, ether, strychnin, atropin, digitalis; external heat; artificial respiration.

Alcohol.—Stomach-tube or emetics; strong coffee, caffein, strychnin; aromatic spirit of ammonia; cold douches; artificial respiration; electricity.

Atropin and Belladonna.—Tannic acid followed by stomach-tube or emetics; physiologic antidotes—morphin, physostigmin, and pilocarpin; strong coffee or tea; artificial respiration; stimulants.

Chloral.—Stomach-tube or emetics; strong coffee; strychnin; artificial respiration; electricity; stimulants.

Digitalis.—Stomach-tube or emetics; tannic acid; strong tea; cathartics; stimulants.

Opium, Morphin, Laudanum, and other Preparations of Opium.—Stomach-tube or emetics; dilute solution of potassium permanganate; tannic acid; strong coffee or tea; caffein; atropin; strychnin; alcohol; oxygen; artificial respiration; tongue traction; cold douches; keep patient awake; electricity; etc.

Nux Vomica and Strychnin.—Stomach-tube or emetics; tannic acid; inhalations of ether or chloroform; chloral; potassium bromid; oxygen; artificial respiration; amyl nitrite; heart-stimulants.

Amyl Nitrite.—Fresh air; heart-stimulants; respiratory stimulants; atropin and morphin hypodermically.

Ptomain Poisoning (Tainted Meat, Fish, Cheese, Ice Cream, Mushrooms, etc.).—Stomach-tube or emetics; cathartics; atropin; opium or morphin if necessary; stimulants.

Bites of Rabid Animals.—Poisoned bites by a mad dog or by serpents should be treated by having the poison sucked out of the wound (unless there is an abrasion on the nurse's lip), and the wound afterward washed with plain warm water. Further spread of the poison may be prevented by placing a tight ligature about the part above the point of injury. Such a ligature, however, must not be left for any length of time, but should be loosened at intervals. The patient must be taken at once to a physician, who will cauterize the wound. The patient must be given stimulants in moderate quantities to sustain the system. The state of the pulse must be taken as a guide to indicate when the proper amount of stimulation has been reached.

Hydrophobia or *rabies* is a disease which is sometimes communicated to man through the bite of a dog having the disease. The disease develops about six weeks after the wound is received. The symptoms are depression and irritability, followed by marked excitability and sensitiveness of the nervous system, with spasm of the muscles of the throat. There is generally some fever. The final stage is marked by paralysis and coma. The immediate treatment of the wound is as given above. The Pasteur treatment consists of hypodermic injections of a specially prepared serum. The most important feature of the nursing of rabies consists of securing extreme quiet in a darkened room.

In all emergencies the nurse must keep perfectly calm; she should think what has happened and what should be done, and then do it quietly. If she gets excited and loses her presence of mind, the life of the patient may be lost. When notifying the physician or surgeon she should send a *written*, not a verbal message, and should state clearly what has happened, so that he will fully understand and come prepared: he should also be informed of what is being done by the nurse.

V. NURSING IN SPECIAL MEDICAL DISEASES.

Infectious and Contagious Diseases.—Infectious diseases are diseases caused by the introduction into, and the growth and multiplication within, the body of microörganisms (known also as germs and bacteria). Those infectious diseases readily communicable from one person to another are known as contagious diseases. But inasmuch as both terms, infectious and contagious, are frequently confused, the diseases in question are now often spoken of as communicable and non-communicable, or transmissible and non-transmissible, infectious diseases. Every infectious disease is caused by a specific germ—a germ that produces that disease and no other. Exposure to an infectious disease does not always result in producing that disease; the mere presence of the active specific cause of the disease is not sufficient to produce the disease—the germs must find conditions in the individual suitable for their growth and multiplication. Some persons by nature seem to be able to withstand the germs of certain diseases; these persons are said to be *naturally immune* to that disease. After a person has had one of the infectious diseases, such as typhoid fever or small-pox, etc., he usually does not get the disease again; this person is said to be *actively immune* to that particular disease. Again, a person likely to be exposed to the germs of diphtheria, for instance, may be given a dose of diphtheria antitoxin—a so-called immunizing dose; such a person is said to be *passively immune* to that disease. In health most persons are able to withstand the attacks of most bacteria, but if their vitality becomes lessened from any cause they may readily succumb. Thus, a person with a local inflammation of the throat is more likely to contract diphtheria than is a well person. The germs of typhoid fever require a suitable condition of the bowels and the general system before they can give rise to typhoid fever. The bacteria of consumption, or pulmonary tuberculosis, do not find in healthy lungs conditions suitable for their growth.

Bacteria may gain access to the body by way of the gastro-intestinal tract (by means of food and drink), the respiratory tract (being inhaled), the genito-urinary tract (by means of unclean catheters, etc.), and the skin (through wounds, the bites of insects, such as mosquitoes, etc). On finding conditions suitable for their growth, the bacteria require some time to develop sufficiently to give rise to the symptoms of the particular disease. The time intervening between the introduction of the germs into the body and the development of the first symptoms of the disease is known as the *period of incubation;* this varies considerably in different diseases. The first symptoms of the disease are known as the symptoms of the *period of invasion.* Following this comes the *period of fever*, which also varies much in different diseases. This is followed by the *period of defervescence*—the period during which the fever falls either by crisis or by lysis. And, finally, there is the *period of convalescence*, the period of recovery of health.

Though germs occur widespread throughout the body, many of them show a special predilection for certain localities. Thus, the diphtheria bacillus occurs in the throat, the typhoid bacillus in the intestine, the pneumococcus (of pneumonia) in the lung, etc. In general it may be said that the local symptoms of infectious diseases are due especially to the local action of the germs, and that the general symptoms, such as the fever and the constitutional symptoms, are due to the absorption and circulation through the body of a poison, called a toxin, that the germs manufacture. The germs of the different infectious diseases leave the body through the gastro-intestinal tract (the stools, vomit), the respiratory tract (the exhalations, expectoration), the urine, and the skin. The germs of diphtheria leave the body through the breath, and the discharges from the nose and throat; those of pneumonia and consumption (tuberculosis) with the expectoration; those of scarlet fever and measles with the breath, discharges from the nose and throat, and the skin, including the desquamation; those of whooping-cough with the breath and expectoration; those of small-pox with all the discharges; and those of typhoid fever with the stools, the urine, the expectoration, etc.

Infectious diseases may be transmitted from one person to another by direct contact with the sick person or with a corpse of one dead of the disease; by indirect contact, such as going into a room inhabited by a person ill with an infectious disease; and especially by means of fomites, which are substances, such as clothing, letters, dishes, carpets, hangings, children's toys, etc., to which the microörganisms adhere. Recently it has been found that infectious diseases may be transmitted by means of insects. Thus, malaria probably is exclusively transmitted in this manner: the mosquito bites a malarious patient, sucking some of the malarial germs. These develop in the body of the mosquito, and subsequently are injected into another person when bitten by the mosquito. Formerly the term *miasmatic disease* was used in connection with malaria—implying that the cause of the disease is to be found in foul air, such as prevails about low, marshy grounds. We now know that it is such localities that favor the development of the mosquito. The "exanthemata" are infectious diseases characterized by an eruption—such as scarlet fever, measles, chicken-pox, small-pox, etc.

We guard against the spread of contagious diseases by isolating the patient in a room at the top of the house, because the air there is purer, and because if the patient be on any of the lower floors the poison might spread upward through the house; by the utmost cleanliness, by keeping the air pure, by the faithful use of disinfectants, and by hanging a sheet wet with some disinfectant, or even with plain water, before the door of the room, so that when the door is opened the germs in the air coming from the room will come in contact with the wet sheet and cling to it; by having separate dishes and utensils for the room and the patient, and separate bed-linen and body-linen, and by thoroughly disinfecting the stools, the urine, and the expectoration before disposing of them. The very best way to treat the latter is to mix them with sawdust and then burn them.

Typhoid Fever.—Typhoid fever is an acute infectious disease due to the typhoid bacillus which gains entrance to the body by means of infected water, milk, or other articles of food. The infection always comes from a previous case of typhoid fever in which sufficient precautions were not taken against the spread of the disease. It is also called enteric fever, slow fever, low fever, and nervous fever, and is characterized by ulceration of certain parts of the bowels. The period of incubation is from two to three weeks.

Symptoms.—Some of the symptoms are headache, aching pains in the back and the limbs, loss of appetite, increasing weakness, nausea, sleeplessness, depression, a chilly feeling, nose-bleed, slight diarrhea, gradual rise of temperature and increase of pulse, coated tongue, stupor, and delirium. There may be *coma vigil*, the patient lying perfectly quiet with his eyes open, but paying no attention to what is going on around him.

The *temperature* gradually rises morning and evening until it reaches 104°, sometimes 105° F., with a corresponding increase in the pulse-rate. During the second week the temperature is high and varies very little; it begins to descend gradually during the third week, the morning temperature being one or two degrees lower than that of the evening. During the fourth week the temperature is almost normal in the morning, and rather irregular. A sudden drop would indicate hemorrhage or perforation of the bowels. The *pulse* is generally rapid, and in severe cases may be dicrotic.

About the second week rose-colored spots appear on the chest, the back, and the abdomen. These spots are slightly elevated and disappear upon pressure. Each spot lasts about three days, a few fresh ones appearing every day or two until the third week, when they disappear. The eruption may be absent in the old and the very young. The third week is an anxious week, as then very often the symptoms are at their worst. The patient may have a relapse, which is another course of the fever; but generally the duration of the disease following a relapse is not so long as the first attack. It is, however, a very serious time, the patient's strength being very low.

The nursing consists in keeping the patient quietly in bed, the bed-linen and body-linen sweet and clean, the air of the room fresh and pure, and the temperature 65° F. The typhoid germ is eliminated from the body through the discharge from the bowels and the urine, and the smallest portion of fecal matter or urine can produce the disease in another person. There may be diarrhea, the movements being loose and yellowish in color, with an offensive odor, or there may be constipation. After a recent hemorrhage the movements are dark red, containing blood; but if not passed for some time after the hemorrhage has taken place, they will be black, resembling tar.

The excreta must be thoroughly disinfected with chlorid of lime (1 pound to 4 gallons of water, 1 quart being well stirred in each dejection), or with whitewash or a solution of carbolic acid (1 : 20). Corrosive sublimate is not so good, as it hardens the albuminous material which covers the outside of all fecal masses, and thus protects the inside from its action. In the absence of all disinfectants boiling water may be used, or the movements may be mixed with sawdust and burned. The feces must not be emptied near a well nor any place where the water-supply would become contaminated. A disinfectant should be poured into the bed-pan before it is carried to the patient, and on its removal it should be covered with a cloth wet in carbolic-acid solution. Bed-linen and body-linen soiled with fecal matter must be thoroughly boiled.

Sometimes there is a constant dribbling of urine through over-distention of the bladder. This trouble is easily remedied if the catheter be passed. There may be retention or suppression of urine. Retention exists when the bladder is full of urine, the patient being incapable of urinating; in suppression the bladder is empty, no urine having been secreted by the kidneys.

The nurse should report any cough, the character of the expectoration, and nose-bleed; also delirium, which very often occurs, and which may be mild, active, or violent. She should be very kind and gentle, but firm; she should not leave the patient *alone for a single moment*, but should wait until some member of the family can relieve her or bring what she needs. She should report any symptoms of pain in the ear, discharge from the ear, or deafness, which is not uncommon. The mouth of the patient must be kept perfectly clean; it should be washed at least three times daily to prevent the collection of *sordes*, a dark-brown accumulation on the teeth, gums, lips, and tongue.

The diet will be liquid food, which is easily digested; a more solid diet would irritate the intestines and cause perforation. Milk will probably be ordered. For an adult two quarts should be given in small quantities every one or two hours during the twenty-four hours; the milk may be flavored with tea, coffee, cocoa, vanilla, or any flavor for which the patient has a fondness. Should the milk not be digested, as may readily be determined by the presence of milk-curds in the dejections, this fact should be reported to the doctor.

A few words may be said here about the drinking of milk. Many patients will drink half a glass, and often a whole glass, of milk at one time, and soon afterward will complain of a feeling of indigestion and want very hot water to drink. Milk curdles as it is swallowed, and if a large quantity is drunk at once, it forms in the stomach a large hard mass, and the juices of the stomach can act only on the outside of it; whereas if the milk is drunk in little sips, it forms a loose mass of small lumps, and the juices of the stomach can work around and through them, and thus dissolve the whole in a very little time. The doctor may order the milk diet to be alternated with beef-tea, chicken-broth, oyster-broth, coffee, or cocoa. Oysters contain an amount of albumin, are very nourishing, are easily digested, and are often retained when all else fails. One oyster, fresh from the shell, may be given every hour or half hour. It should be remembered that the patient's mouth and lips are very often parched and dry; therefore they should be moistened before feeding. The patient should always be awakened for treatment in the daytime, but the doctor should be asked if he is to be awakened during the night.

Thirst may be relieved with crushed ice, lemonade, or orangeade. The patient should also be supplied with plenty of cool filtered or distilled water or with Vichy water. The object of giving the patient plenty of pure water to drink is to flush out the kidneys and to aid in the elimination of the toxins and the worn-out material generated in the body by the fever.

The temperature is reduced by means of tepid sponging, the cold pack, and the tub-bath (see pages 87, 88, 97). Besides reducing the temperature, baths soothe and quiet the patient, and stimulate the nervous, cardiac, and respiratory systems.

Complications.—Some of the complications of typhoid fever are pneumonia, hemorrhage, peritonitis, perforation, and diarrhea.

Two of the most dreaded complications of typhoid fever are *hemorrhage* and *perforation*, and it is the liability to these two complications that makes it absolutely necessary for the patient to keep perfectly quiet, not rising for anything without direct orders from the doctor, be the case ever so mild, as sitting up causes pressure upon the ulcerated part, and might result in perforation. Purgatives must not be given by a nurse on her own responsibility, as they might irritate the bowels and cause perforation.

Hemorrhage.—The intestines, though very thin, are supplied with large and small blood-vessels. In typhoid fever the intestines are in some parts ulcerated: one of the ulcers may eat its way into a blood-vessel and cause *hemorrhage*, which is indicated by a sudden fall of temperature, a small, rapid pulse, a pale face, an anxious expression, restlessness, demand for air, faintness, and blood in the movements.

With *children* ulceration of the bowels is less likely than with adults, consequently the dangers of hemorrhage and perforation are less. The rash may be absent, but the brain-symptoms are marked, and generally the temperature rises suddenly. In very old people the rash may also be absent.

Treatment of Hemorrhage.—In treating hemorrhage the foot of the bed should be raised as high as possible. If the bedstead cannot be raised, then the bed-spring should be raised and the head of the patient should be lowered. Ice or ice-cold cloths may be applied to the abdomen. Upon the doctor's orders morphin (gr. $\frac{1}{6}$) may be given hypodermatically; it will both stimulate the heart and secure rest and quiet. The patient must be kept perfectly quiet on the back, so that the blood will coagulate in the vessels and prevent further hemorrhage.

Perforation is due to the breaking of an ulcer of the intestine; the contents of the bowels then escape into the peritoneal cavity, causing inflammation of the peritoneum, known also as peritonitis. The *symptoms of perforation* are sudden and sharp pain in the abdomen, which is distended and tender, vomiting, a fall of the body-temperature, a small, rapid pulse, and all the symptoms of collapse.

Treatment of Perforation.—The treatment until the arrival of the physician consists in the application of hot fomentations to the abdomen and down the limbs, stimulation, and, if permission from the doctor has been secured, morphin (gr. $\frac{1}{6}$) to secure rest and quiet and to relieve the pain.

The nurse must be calm, cheerful, and equal to any emergency. Whatever happens, she should not let her patient know, either by word or by look, that there is anything wrong; she must remember that the patient is watching her very closely, and is guided by the expression of her face.

Tympanites, which is distention of the abdomen through the accumulation of gas in the bowels, is relieved by turpentine fomentations or by plain poultices and the rectal tube.

Bed-sores may be prevented by bathing the patient's back with alcohol or with a solution of salt and whisky (2 teaspoonfuls of salt to a pint of whisky), or by powdering the back with oxid of zinc, fuller's earth, powdered starch, corn-starch, bismuth, or borax. If the skin breaks, the part should be covered with the white of egg. When the urine and the feces are passed involuntarily or when there is much skin moisture, rubbing the back with olive oil or vaselin will prevent the moisture from being absorbed. In the absence of alcohol, the parts should be kept perfectly clean with soap and water; the sheets should be kept dry and free from wrinkles; pressure should be removed and the position of the patient should be changed often.

Convalescence.—During convalescence there may be a temporary rise of temperature, due either to excitement, change of food, or constipation. The diet should be light, such as custards, puddings, cream-toast, soft-boiled eggs, and jellies. A return to solid diet should be made only with the doctor's permission. Very few visitors should be allowed. The nurse should be faithful in the use of disinfectants, and should never go to her meals without first washing her hands thoroughly with soap and water and a brush. The germs enter the body by the mouth; hence by the thorough washing of her hands before eating the nurse will guard against the germs of the disease—typhoid or any germ-disease of which she has the care—being swallowed with the food.

Walking Typhoid Fever.—"Walking" typhoid fever, as a rule, is of a mild character; the patient refuses to give up and go to bed. Still, there is always the danger of grave symptoms developing and resulting in death.

Scarlet Fever.—Scarlet fever is synonymous with scarlatina. It is an acute infectious contagious disease characterized by high temperature, rapid pulse, headache, vomiting, sore throat, and rash. The tongue is coated, which coating after a few days disappears and the papillæ become prominent and bright red—the "strawberry tongue," as it is called. The bowels are constipated, the urine scanty and high-colored. On the second day of the disease the rash appears. It begins as small red dots on the chest and neck, and gradually extends until the whole body is a bright scarlet. About the fifth day the temperature begins to fall, and gradually decreases, the eruption fades, and desquamation or peeling begins. Very often large scales will come off the hands, the feet, and the abdomen. This peeling lasts for two or three weeks.

In the *malignant* form the rash comes out late, the temperature is very high, and death often takes place in from two to three days; while in the simple form the rash is present, but there is very little throat trouble. With children scarlet fever is often ushered in with convulsions.

The treatment of scarlet fever lies in isolating the patient in a room as far away from the family apartments as possible, and in removing all unnecessary articles from the room. If two adjoining rooms can be used, the medicines, dishes, disinfectants, etc. should be kept in the second room; if only one room is available, a screen may be improvised by covering a clothes-horse with a shawl, a blanket, or a sheet, and behind this screen everything may be kept. A small table may be placed outside the room, and provided with a slate upon which the nurse writes her requirements, the things needed being left for her on this table.

The nurse should keep the air of the room perfectly pure and the temperature at 65° F. When ventilating the room, she should take care that the air does not blow from the sick-room into the other rooms of the house. A sheet wet with some disinfectant should be hung over the door. Nothing must leave the room without first being washed in a disinfectant or in boiling water. The diet is liquid. The patient should be given to drink plenty of pure cold water, which will flush out the kidneys and aid in eliminating the worn-out material generated in the body.

Baths or cold packs may be ordered to reduce the fever, followed by oiling of the body with cocoa-butter, sweet oil, or vaselin. This treatment, besides reducing the fever, will assist the peeling and prevent the scales of skin flying about, and thus act as a preventive against the spread of the disease. The nurse should have everything ready before beginning the bath, and the bed- and body-linen thoroughly aired before being changed.

The nose, mouth, and throat of the patient should be kept perfectly clean. Soft rags should be used to wipe away the fecal discharges, and they should be burned as soon as used; if this is impracticable, they should be thrown into a pail of disinfectant. If the throat is ordered to be sprayed, the nurse should stand a little to one side when spraying, so that the patient will not cough in her face.

The ears of the patient should be watched very closely, and any pain or discharge should be reported to the physician. Inflammation of the middle ear, a very common condition after scarlet fever, and deafness, are often due to carelessness on the part of the nurse. If the pain is severe, one may, until the arrival of the doctor, try hot flannels or a bag, made in half-moon shape, filled with salt and heated. This bag should be applied around the ear, never over it, because the heat might cause the walls of the canal to swell, which would bring them together. Dry heat will give great relief.

Complications.—Uremia, dropsy, and nephritis (inflammation of the kidneys) are complications very apt to appear. The urine must carefully be watched and measured. The nephritis and dropsy may be due to cold taken during a bath or during convalescence, either through carelessness of the nurse or obstinacy of the patient. The *dropsy* appears as puffiness of the face, the eyelids, and the limbs, and is associated with paleness; headache, and smoky-colored urine. With children uremia is very often ushered in with convulsions. *Uremia* is caused by the retention in the body of certain waste products that should be eliminated by the kidneys. The *symptoms of uremia* are headache, suppression of urine, nausea, and the odor of urine in the breath; unless relieved, these symptoms are followed by convulsions, coma, and death. The pulse is slow and full, later weak; the temperature is subnormal.

Uremic convulsions may be relieved by a hot pack or a hot-air bath, venesection (if the doctor orders), and hypodermoclysis. An enema or a cathartic of oil or of Epsom salt may be given to clear the bowels. Hot fomentations or poultices may be applied over the kidneys to relieve the suppression of urine.

Delirium must at once be reported. Should it set in after the physician has made his visit, cold may be applied to the patient's head.

Depression must be met with stimulants. The patient should be well nourished, as the fever is very exhausting.

Convalescence.—The patient will probably require isolation for four weeks, be the case ever so mild. A thorough bath and a complete change of clothing must be given before he goes into another room. Some doctors like the patient to be in an adjoining room for two weeks before mingling with the family. The patient must be kept away from all draughts. The convalescence is slow and must be guarded.

Typhus Fever.—Typhus fever is an acute contagious disease caused by an infecting germ and influenced by overcrowding, bad food, bad air, and impure drinking-water.

Symptoms.—Typhus fever begins abruptly with a chill, followed by high fever, severe pain in the head, the back, and the limbs, muscular weakness, and great prostration. The temperature rapidly rises, and about the third or fourth day it is 104 or 105° F., with a corresponding increase of pulse, from 120 to 130 beats, which are at first full, bounding, and compressible, and later weak and often dicrotic. The bowels are constipated, the urine is scanty and high-colored, the face is dusky, and the tongue is covered with a whitish fur which in severe cases becomes black. There is also a peculiar odor characteristic of the disease.

About the fifth day there appears over the body an eruption, consisting of rose-colored spots, which after two or three days become darker. The difference between the rash of typhoid and that of typhus fever is that the eruption of typhus does not appear in successive crops, it does not disappear upon pressure, it begins to fade from the end of the first week to about the middle of the second week, and is much darker.

In severe cases death may take place in a few days from coma or from heart-failure, while in mild cases the improvement begins about the end of the second week, the temperature falls suddenly, and convalescence is rapid.

Treatment.—The patient is to be isolated, and disinfection of the clothing and the excreta must be thoroughly effected. The exhaustion, which is extreme, is met with stimulants. Bed-sores and heart-failure are to be guarded against. All visitors are to be excluded, and the patient is to be kept bodily and mentally quiet. The nurse must not hesitate to feed the patient by the rectum if it becomes necessary. The high temperature is treated with cold baths or packs; the headache and delirium are treated with cold applied to the head and absolute quiet maintained. The air of the room must be kept fresh and pure, and the temperature even.

The *complications* of typhus fever are catarrhal pneumonia, inflammation of the kidneys, and swollen parotid glands.

Small-pox.—Small-pox is an acute contagious disease. The *varieties* are—discrete, confluent, malignant, and varioloid or modified small-pox.

Symptoms.—The disease begins with a chill, high fever, vomiting, intense pain in the back, limbs, and head, sleeplessness, and a full and rapid pulse (from 100 to 120 or more). The temperature reaches its height (104–105° F.) about the second day, and at the fourth day it begins to fall. About the third day the eruption begins to appear on the forehead and face, and consists of small, round, elevated red spots, which feel like shot. When the eruption appears the temperature falls and the patient feels very comfortable. The eruption gradually spreads over the entire body. On or about the sixth day these small hard spots become clear vesicles or blisters, and two or three days afterward they change to pustules; then the secondary chill sets in, the temperature rises to 104 or 106° F., with a corresponding increase in the pulse. Pus oozes from the pustules, which in about three days dry up and form crusts having an offensive odor. After a week or so these crusts fall off and leave the "pock-marks." There is delirium, the face is swollen, the features are disfigured and often unrecognizable, the bowels are constipated (though there may be diarrhea), and the urine is scanty. The secondary fever in a mild case may gradually subside on the third or the fourth day, and convalescence set in.

In the *confluent* form the pimples are very abundant and they run together; there is a fetid discharge from the nose and the throat. The *symptoms* are more severe than in the discrete form.

The *malignant* form ends in death in a few days, before the rash appears. *Varioloid*, or the modified form, occurs in a person who has either been vaccinated or has had a previous attack.

The nursing consists in isolating the patient and using every precaution against the spread of the disease. Members of the family must protect themselves by vaccination; the air of the room must be kept pure, and the temperature even (about 65° F.). The fever may be treated by cold baths or packs, and pains in the limbs and back, either by ice or by heat—whichever is the more comfortable to the patient. The pitting can to a certain extent be prevented by darkening the room, keeping it thoroughly ventilated, covering the patient's face with a mask soaked in either carbolic-acid or corrosive-sublimate solution, or by applying some simple ointment which will relieve the pain and heat. To prevent scratching, the patient's hands may be tied up in soft cloths.

When the crusts fall off they must be burned. The eyes, nose, and mouth must be kept clean, being washed several times a day. The diet consists of milk, broths, egg-nog, oysters, oyster-broth, and beef-juice. Crushed ice, lemonade, or soda-water may be given to relieve the thirst. Stimulants may be given if necessary.

After the case is ended everything that can be burned must be so destroyed, and the room and the furniture be fumigated and disinfected several times (see p. 258). It is a dread disease, and the germs, like those of scarlet fever, are very long lived.

Chicken-pox.—Chicken-pox or varicella begins with slight fever and there may be restlessness and vomiting. Before the end of the first twenty-four hours the eruption appears on the face and chest; later upon the extremities and back. At first the eruption consists of elevated spots widely scattered, but these quickly form vesicles or blisters. The eruption appears in crops lasting two or three days and it very rarely pustulates. The vesicles dry up and form crusts which fall off in a few days.

Nursing.—The disease is contagious as long as the crusts are present; the patient should, therefore, be isolated. The body should be sponged every day and the crusts well oiled. Cleansing and airing of the room when the patient has recovered is the only disinfection that is necessary. For the itching mild solutions of carbolic acid may be applied.

Measles.—Measles begin with all the *symptoms* of a severe cold. About the third day the rash appears on the face and forehead, and then spreads over the body. It consists of small red spots of different sizes, slightly elevated. The temperature rises to 102° F., and increases when the eruption appears. At the end of two or three days the eruption fades, the temperature suddenly falls, and desquamation, or peeling, begins in the form of a fine branny powder, very unlike the peeling seen in scarlet fever.

The Nursing.—The patient is to be isolated, as the disease is contagious; the temperature of the room should be even (about 70° F.), and the room must be slightly darkened on account of the condition of the eyes. Baths should be given to assist the peeling. The *diet* is either liquid or of light food, according to the amount of fever. The bowels must be kept regular. The eyes, nose, and mouth must be kept perfectly clean. The patient must be guarded against exposure to draughts, and must be kept in bed, be the case ever so mild, until the peeling is over. After the patient has left the room any tendency to cough must be reported. Disinfection and fumigation should be practised as for scarlet fever (see pp. 244, 258).

Complications.—Some of the complications are pneumonia, bronchial catarrh, and inflammation of the eyes, nose, throat, and ears.

German measles or **rubella** is an acute contagious disease resembling scarlet fever and measles, but differing from them in its short course, slight fever, and freedom from bad consequences. It usually affects children.

Symptoms.—The disease begins with drowsiness, slight fever, and sore throat. The lymphatic glands of the neck become swollen. The eruption appears on the first or second day and may resemble that of scarlet fever or measles. It begins on the face and rapidly spreads over the entire body, but fades so rapidly that the face may be clear before the limbs become affected.

Nursing.—The disease is contagious, so that the patient should be isolated, the general treatment being the same as in measles. Alternating hot and cold fomentations may be applied to the swollen glands.

end

Malaria.—Malaria is an infectious disease marked by paroxysms of chill, fever and sweating, and by enlargement of the spleen and depraved nutrition. It is caused by the presence in the blood of the malarial parasite, which is transmitted from the sick to the well by the bite of a species of mosquito known as the anopheles.

As commonly seen the disease appears in three varieties: intermittent fever, remittent fever, and chronic malaria. *Intermittent fever* is the commonest form, and is characterized by normal intervals between the paroxysms. These latter are marked by chill, fever, and sweat, occurring in regular order. In the *remittent* form there is little or no recession of the fever. In *chronic malaria* there is varying fever, anemia, a sallow appearance of the skin, and enlargement of the spleen.

Nursing.—In the cold stage or chill the patient should be well covered, and hot-water bags should be placed at his feet and in the axilla. The hot stage should be treated with sponge baths or alcohol rubs and with cold compresses to the head. The patient should be screened from mosquitoes so that the disease may not be carried to others.

Hygiene.—In malarial regions the windows should be carefully screened, and care used in protecting people when asleep by means of mosquito netting.

Klebs-Loeffler bacillus

Diphtheria.—Diphtheria is an extremely infectious disease, the germs of which have their seat in the throat. The poison is carried through the body, and may give rise to certain forms of paralysis, which is partly due to the action of the poison on the nervous system, and partly to its interference with the nutrition of the various tissues of the body.

The temperature ranges from 100° to 105°, or 106° F. in severe cases, with a correspondingly increased pulse. The tonsils are red, swollen, and covered with membrane. This membrane may be of a gray or a yellowish-white color, and gradually change to a dull gray. When the membrane extends to the nose and the larynx, this condition will be manifested by an offensive discharge from the nose and nose-bleed, and by a gradual loss of the voice and difficult breathing. Soft cloths should be used to wipe away the discharges from the nose and the mouth; these cloths must be burned or thrown into a disinfectant as soon as used. The discharges are highly infectious. All cuts and scratches of the nurse's hands should be covered, as the smallest amount of discharge that may get on any raw surface is capable of producing blood-poisoning.

The Nursing.—The patient must be isolated. The room is to be properly ventilated, and the temperature of the room should be 65° F. Moist air may possibly be ordered, which can readily be secured by keeping pans or kettles of boiling water in the room, or, if there is a fire in the room or furnace-heat, by wringing sheets out of water and hanging them up to dry.

Steam inhalations may be ordered for the throat, or gargles or sprays. Peroxid of hydrogen is very commonly used for the destruction and elimination of the false membrane, and if the throat is not very sensitive, this drug may be used undiluted, applied with a swab. If this cannot be done, the throat may be sprayed with one part of peroxid of hydrogen to 4 parts of water.

A glass atomizer must be used, because the peroxid of hydrogen decomposes when in contact with metal.

The *antitoxin treatment* for diphtheria is the injection into the body (generally into the broad of the back) of antitoxin serum, by means of a large hypodermic syringe. The operation is performed by the attending physician. The wound is sealed with a collodion dressing.

The *nourishment* and *stimulants* must faithfully be kept up. Often the throat is so swollen that the patient cannot swallow, and resort must be had to nasal or rectal feeding. Crushed ice or ice-cream will prove very grateful to the patient, besides helping to reduce the inflammation. The ice-cream adds to the amount of nourishment taken, as it is made of milk and eggs. Paralysis of the muscles of the throat is not uncommon, and the patient must not return to solid diet without permission from the doctor. There may also be temporary paralysis of the muscles of the eyes and of the limbs.

The nurse must watch the urine; it will be high-colored and scanty, and there may be retention, owing to paralysis of the bladder. The depression is very great, and heart-failure often occurs through sudden sitting up or sitting up too soon. The patient must not be allowed to sit up without direct orders from the doctor.

The nurse must guard herself by good, nourishing food, fresh air, and the faithful use of disinfectants. The germs are less likely to infect the lining membrane of the throat and larynx if these parts are in a healthy condition; but when the tonsils are inflamed the germs find the conditions necessary for their development, and diphtheria is the result. When the case is ended thorough disinfection is necessary.

Tracheotomy is often performed in diphtheria when the larynx is obstructed through extension of the diphtheritic membrane and there is danger of suffocation. It is also performed in membranous croup for the same reason as that in diphtheria. With the instruments the nurse has very little to do, but she must have at hand plenty of *hot water*, basins, tape, scissors, strong white thread, a fan, stimulants, sponges, a firm, hard table, and a small pillow, which can be made of a folded sheet. The patient is placed on the table, and the clothing is slipped well under the shoulders; the patient is then rolled in a sheet or a blanket, which is pinned securely, so that he cannot struggle or get loose (Pl. 3). If the nurse is asked to hold the head, she should hold it firmly and not too far back, lest the patient be suffocated before the operation is begun. When the trachea is opened there will be a rush of air and mucus; then the silver tube (Fig. 85) will be inserted and secured by the tape, which is passed through the slits on each side of the shield, and carried round the neck and tied at the side (Fig. 85). The trachea-tube is made double, so that the inner one may be taken out and cleansed. The *after-care* consists of three things: faithfulness in maintaining the patient's strength with nourishing food and stimulants, keeping the tube free from membrane, and the air of the room moist and warm (temp. 80° F.), because in tracheotomy the air does not first go through the nostrils and become warmed before reaching the lungs, but it goes directly to the lungs through the tube. This protection is further effected by folding a light muffler of gauze over the aperture of the tube. The patient may be fed by the rectum if necessary.

Everything should be made ready before beginning to cleanse the inner tube, which should not be kept out longer than necessary. If the tube is oiled a little, its removal will be facilitated and the mucus prevented from accumulating. The discharge should be noticed—if it be thin, dry, or moist. A small piece of flannel or of cotton-wool spread with vaselin and placed between the tube and skin will protect the edges of the wound against the pressure of the tube and prevent irritation and chafing.

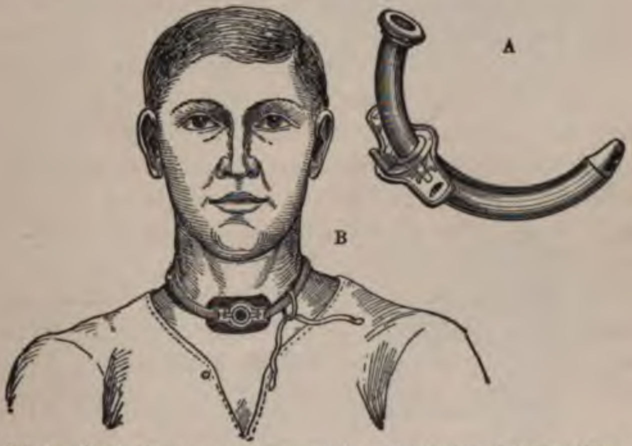


FIG. 85.—Tracheotomy: A, tracheotomy-tube; B, tracheotomy-tube in position.

Should the tube suddenly be coughed out, it should quickly be replaced; if this is impossible, a small catheter may be inserted or a small rubber tube, which can be kept in position by means of a safety-pin run through the end of the tubing, a cord or tape being slipped through each side of the pin and tied around the neck. Should either of these measures fail, then the part should be kept wiped out with absorbent cotton, and the patient raised in the best breathing position possible until the arrival of the doctor, and stimulants be given if necessary.

Intubation.—This, as the above operation, is performed when the larynx is obstructed either from acute or chronic disease or from a foreign body. The duties of the nurse in intubation will be, in case the patient is a child, to hold the child upright in her arms, with its knees placed firmly between her own, while an assistant stands behind her chair and holds the head in the proper position (Pl. **3**). The patient should be fed well; he will swallow better with the head to one side. Ice-cream, crushed ice, and all foods in small amounts may be given.

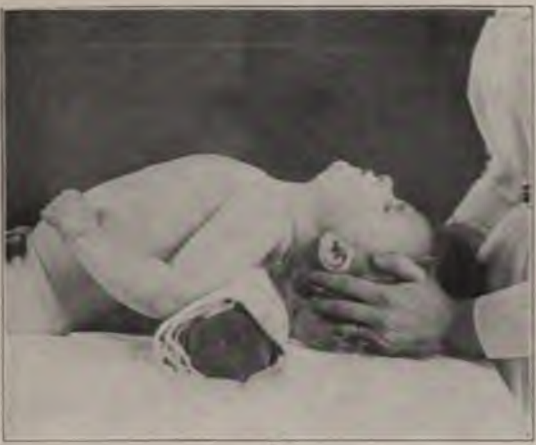
If the tube is coughed up or swallowed, the doctor must be informed. If swallowed, it will probably pass through the bowels without any trouble. It may not be necessary to reinsert the tube; however, it is always well to ask the doctor what to do under such circumstances.

Gonorrhea.—Gonorrhea is an infectious disease which affects most frequently the mucous membrane of the genital organs, producing inflammation with a profuse discharge, which at first is serous, but later becomes thick pus.

Nursing.—The nurse must constantly keep in mind the infectious nature of the discharge and the possibility of acquiring the disease herself or of transmitting it to others. Gonorrheal inflammation of the eyes is a very serious condition. After each contact with infected clothing, bed-linen, or utensils, the hands should be carefully cleansed and disinfected. All bed- and body-linen from patients having gonorrheal discharges should be disinfected.

Syphilis.—Syphilis is a general disease affecting the

DIPHTHERIA. PLATE 3.



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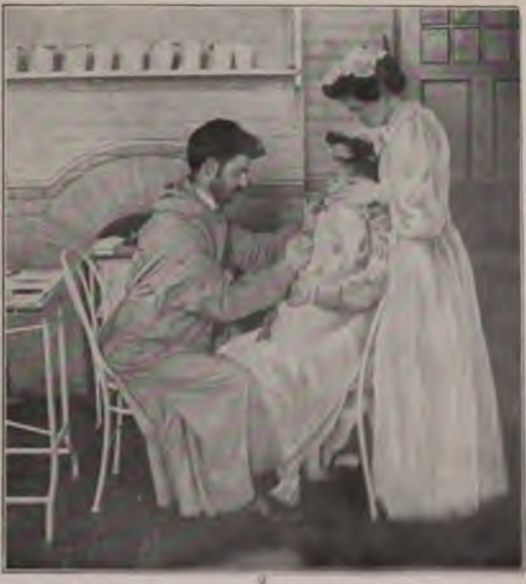

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1. Position of patient for tracheotomy; 2, Intubation; inserting the tube (from *An American Text-Book of the Diseases of Children*).

blood and all the tissues of the body. It is transmitted by inoculation, the virus entering the body through a scratch, abrasion, or any raw surface. After infection the symptoms appear in from ten days to three weeks, the first of them being the appearance at the point of infection of a small sore which becomes hard. This sore (called a chancre) may form an ulcer or it may dry up and disappear. There may be swelling in the neighboring lymphatic glands.

The second stage begins about six weeks after infection. There is depression, irritability, insomnia, headache, glandular swelling, and the formation of characteristic eruptions (syphilides), which may be in the form of macules, papules, or pustules. Ulcers form in the mouth and about the anus and genitals, and frequently the hair falls out in spots.

The third stage may appear at any time after six months from the first infection. It is marked by the formation of characteristic tumors called gummata, and various disorders of the bones, blood-vessels, and internal organs. The lymph-glands are enlarged and nervous disorders may develop, such as locomotor ataxia, apoplexy, dementia, with frightful headache and convulsions.

Treatment.—The medical treatment of the first and second stages is by mercury; that of the third stage by iodids. The secretions from the sores are extremely contagious; therefore the nurse must disinfect herself thoroughly, and take great care of all utensils or dressings used about the patient. Rubber gloves should be worn. She may be directed by the physician to give the mercurial inunctions called for in the treatment of the disease (see p. 83). In that case, of course, she should wear gloves that do not absorb the mercury.

Fumigation of Sick-room after Contagious Diseases: Sulphur Fumes.—After recovery or death of a patient from contagious disease everything in the nature of books, playthings, etc. that can be burned should be so destroyed, and the remaining things be washed thoroughly in carbolic-acid solution (1 : 20) or in boiling water, and the room fumigated. The germs, which are very long lived, may lie hidden in clothes, books, and other things if these are packed and laid away; they will also lie in the corners of a room, and will develop months or even years after the case has ended and do all the harm of which they are capable. The fumigation should be very thorough. All the cracks in the room should be closed either by stuffing them with cotton or by pasting paper over them. All drawers and closets should be opened, and the pillows and mattresses should be ripped. A tub or a large pan should be partly filled with water, and in this be placed two or three bricks on which to stand a smaller pan. In this smaller pan is put the roll sulphur, which must be broken up into very small pieces and be saturated with alcohol. The water in the large pan will both guard against fire and furnish moisture in the form of steam. After everything is secure and there is no possible way for the sulphur fumes to escape the sulphur is ignited. If alcohol is not at hand, a few red coals will ignite the sulphur. The room door is now closed, the key-hole and all the cracks of the door are stopped up, and the room is left for twenty-four hours, when it is opened and aired for twenty-four hours longer; then everything, including the walls and floors, must be washed with either corrosive-sublimate (1 : 1000) or carbolic-acid solution (1 : 20) and exposed to the action of the sun and air for a number of days.

If, when preparing the room for fumigation, a hole is bored through the middle of the top window-sash, and there is passed through this hole a piece of rope of sufficient length to extend to a window below, the sick-room window can be opened from the outside at the end of the fumigation. When closing up the cracks in the sides of the window care should be taken that they are filled in securely, so that the sulphur fumes cannot escape through them, but at the same time that the window can easily be pulled open.

Formaldehyd fumigation has now almost entirely replaced the much less certain sulphur fumigation. It is done by means of specially constructed apparatus (Fig. 86) which are fully described in the circulars issued by their makers.

Moist fumigation is obtained by filling the room with steam generated from kettles of boiling water, or, if there is a register or a fire in the room, by hanging up wet sheets or wet blankets. This procedure is continued until moisture falls from the walls and the furniture, to which moisture the germs cling; then, while still moist, the walls, furniture, and floor are thoroughly washed with corrosive-sublimate solution (1 : 1000), and afterward exposed to the influence of the sun and air.

Another method of disinfection is to close the room for twelve hours, until the dust has settled, and then to wash off the furniture with corrosive-sublimate solution (1 : 1000). Newspapers are then spread upon the floor and the walls are rubbed with stale bread; the crumbs fall upon the newspapers, which are afterward taken up and burned. The disadvantage of this method lies in the inability to get into the crevices.

When a patient dies of a contagious disease, the body should be washed with a disinfectant and be wrapped in a sheet wrung out of the same; the funeral must be strictly private.

The dress of the nurse must be of wash material, and she should wear a close-fitting cap. A member of the family should relieve her at meal-times and when she is sleeping. She should not eat nor sleep in the sick-room if this can possibly be avoided. She should go out for a while each day, no matter how tired she may be, first

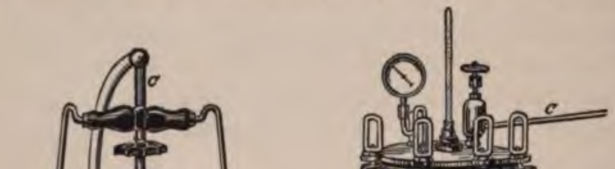


FIG. 86.—Autoclaves for generating formaldehyd (1) from formalin and (2) from formochloral: *A*, chamber for reception of the fluid; both chambers are hermetically sealed when apparatus is in operation; *B*, lamp for supplying heat; *C*, tube for conducting gas from generator into the room to be disinfected (Abbott).

making an entire change of clothing, or she should go into an adjoining room, open the window top and bottom, and walk up and down before the open window.

end

Phthisis is tuberculosis of the lungs, commonly called "consumption," and is infectious through the expectorations if the latter are allowed to dry, the germs of the disease (known as the Bacillus tuberculosis) being blown about in the dust.

Forms of Phthisis.—There is an acute and a chronic form of phthisis: the *acute* form at first is not unlike pneumonia; there is chill, a rise of temperature, profuse perspiration, especially at night, increasing emaciation and weakness, difficulty in breathing, a short hacking cough; the expectorations at first are rust colored, and afterward become purulent. All these symptoms rapidly increase, and death occurs in a few weeks or a little longer. In the *chronic* form the patient may linger for years.

Nursing.—The patient must sleep alone, and every precaution should be taken to prevent the spread of the germs. A sputum-cup (Fig. 87) containing some antiseptic solution should be used by the patient and be cleaned at least three times a day. The other excretions must also be disinfected. If the patient is able to go about, he should be told the importance of expectorating in pieces of soft cloth, which can be burned, and not in handkerchiefs which are to be washed. Kissing must not be allowed, as the infection can be transmitted by sores that may be on the lips; neither should a healthy person sleep in the same room with a consumptive. It is very important that cuts and scratches on the hands should be well covered, as there is danger of the sputum coming in contact with such injuries and of the germs entering the body through the broken skin. The nurse will, therefore, see how essential it is, when on duty in contagious cases, to take great care of her hands. The same precaution applies to the patient, all cuts and scratches being covered, so that the sputa and excretions cannot come in contact with the wounds. The skin should be kept perfectly clean.

In caring for consumptives there are four elements of chief importance: Fresh air, rest, plenty of nourishing and easily digested food, and cheerful and comfortable surroundings. The airiest and sunniest room should be selected for the patient. When possible he should be kept out of doors all day. At night the windows of the sleeping-room should be kept open both winter and summer, the patient being well covered and protected from draughts. When the disease is active, as indicated by the presence of fever, absolute rest should be maintained. The patient should lie on a bamboo couch in the open air, warmth being maintained by plenty of covering and, if necessary, by a hot stone or water-bottle at the feet. As strength is regained, exercise may be taken gradually and cautiously, care being taken to guard against fatigue. Coughing may be relieved temporarily by steam inhalations, the head being wrapped in a large towel or small blanket and held over a pitcher of boiling water, to which a teaspoonful of compound tincture of benzoin may be added. When the temperature is high, cold sponging is useful.

Diet.—As much nourishing food should be allowed as the patient is capable of taking. The diet should include meat, milk, and eggs in abundance. Scraped raw beef (see p. 350) is often of particular value. Cream, butter, olive oil, and fat meats are desirable when the patient can digest them. Fresh fish, cereals, vegetables, and fruit may be taken. When there is severe indigestion, a liquid diet is called for. Careful preparation and dainty serving of the food are important, that the patient may be encouraged to eat freely.

Patients with phthisis esteem the kind attention of the nurse, and every effort should be devoted to making them as comfortable and as happy as possible.

Simple Croup.—Simple croup or false croup is a disease of children. It is due to a spasm of the vocal cords excited by congestion of the mucous membrane of the larynx. It begins with all the *symptoms* of a severe cold—dry cough and suppressed voice, caused by mucus collecting in the nostrils and larynx, which becomes dry and hard; consequently the patient is in great distress, and makes spasmodic efforts to breathe.

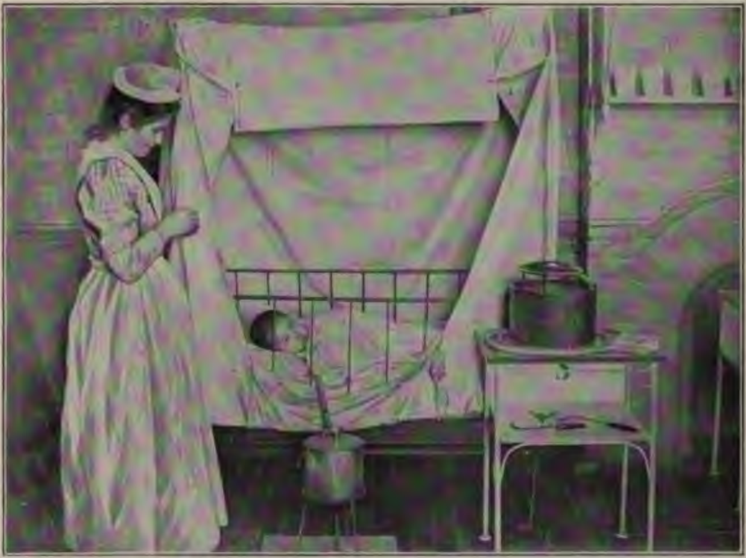
The patient should be propped up in the best breathing position, and hot fomentations applied to the throat; an effort should be made to produce vomiting with lukewarm water and salt, or by tickling the throat, or by running the finger down the throat, followed by any kind of oil, melted vaselin, mutton tallow, etc. A cold cloth should be wrapped around the neck and the patient put into a hot bath (temperature from 100° to 102° F.), and a simple enema to clean the bowels should be given. The temperature of the room must be kept even (70° F.), and the air moist. The attack usually occurs at night, and a second attack can generally be prevented by keeping the bowels open and by not allowing the child to sleep uninterruptedly through the night; it should be given a drink of milk or of water, which will tend to prevent the mucus collecting.

Membranous Croup.—Membranous croup, or true croup, is by most authorities considered the same as diphtheria. The mucous membrane lining the larynx is inflamed, and a tenacious mucus covers the swollen membrane, which gradually thickens until the breathing is obstructed. There is high temperature (102–104° F.) and a small, rapid pulse. Until the arrival of the doctor the nurse can only apply the same remedies as those used for simple croup. Stimulants should be given if necessary. If the obstruction is persistent and threatens to cause suffocation, tracheotomy or intubation will have to be performed. The patient's strength must be kept up by proper nourishment and stimulants.

Should the patient appear to be suffocating, the nurse may, until the arrival of the physician, try to remove the membrane with a cotton-stick or with her finger; in fact, at such a time she will be justified in doing anything that will save the patient's life. Calomel fumigation (Pl. 4) often affords relief from the urgent symptoms.

Croup Tent.—A croup tent is made by placing a blanket over a frame in such a way that the crib or bed is covered except for a small aperture for ventilation. If a regular frame is not at hand, a substitute can be contrived by erecting broom-sticks at the four corners of the bed and stretching a cord around the tops of the sticks. An improvised tent can be made by throwing a large blanket over an umbrella tied to the head of the bed.

Whooping Cough.—Whooping cough (pertussis) begins with all the symptoms of catarrh of the trachea and bronchi (the air-passages), high temperature, and rapid pulse. About the tenth day the cough becomes violent, the deep, loud, long-drawn, shrill inspirations which will be heard are probably due to spasmodic contraction of the glottis. During the attack the child may become



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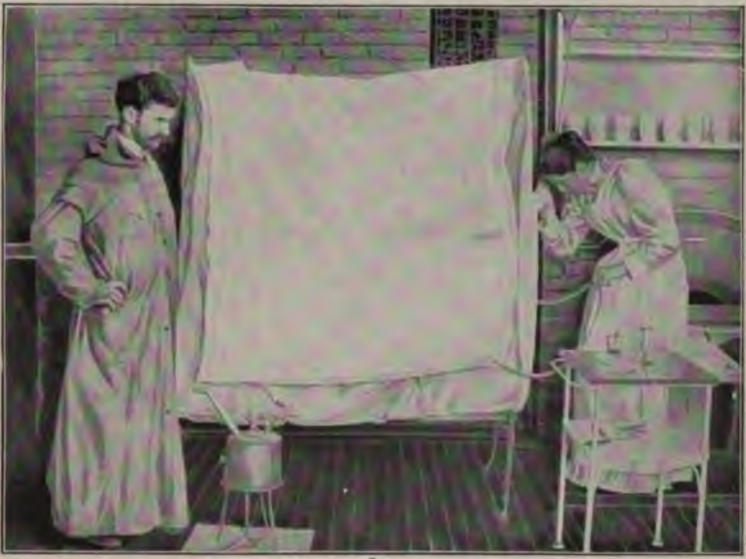

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Croup-tent for steaming and calomel-fumigation (Northrup): 1. Croup-tent open. The fumigation-apparatus, standing on the table, consists of a Bunsen burner, a tripod, and a plate containing calomel. 2. Calomel-fumigation: croup-[illegible]sed, nurse watching the child while fumigation is going on.

perfectly blue; the veins in the neck become swollen, and in some cases will be thoroughly exhausted after coughing, while in others the child will rapidly recover and continue to play. The patient must be isolated from other children, and be given light and nourishing food; the air of the room must be kept pure and the temperature even. Steam inhalations and counter-irritants to the chest may be ordered. Anything that seems unusual about the child must be reported. Should convulsions occur, a warm bath should be given while waiting for the doctor, and cold cloths be applied to the head. The disease may last from four to six weeks, or even longer. The paroxysms of coughing occur oftener at night than during the day, and generally, where there are a number of children with the disease in the same room, when one begins to cough the others also begin. Among the complications are chronic bronchial catarrh, pneumonia, diarrhea, and phthisis. Whooping cough is very infectious through the discharges from the nose and throat.

Influenza (*la grippe*) is an acute infectious disease characterized by fever, pains in the head, back, and limbs, great prostration, chilliness, sneezing, hoarseness, and cough.

The treatment is rest in bed and liquid diet. The pains in the head, chest, and limbs may be relieved with hot applications. Phenacetin, 5 grains in half an ounce of whisky every four hours, may be given. It must be remembered that phenacetin is very depressing on the action of the heart, and, though some persons can take doses of from 15 to 20 grains, death has been known to result from a smaller dose. This fact is mentioned because the drug is very carelessly used, no thought being given to its action on the heart; it should not be taken—in fact, no drug should be taken—without the sanction or advice of a physician. The patient must be guarded against draughts, and be stimulated if the pulse indicates heart-failure. The *complications* are catarrhal and croupous pneumonia, inflammation of the kidneys, and heart-failure. One attack does not mean immunity from another.

Tonsillitis, or inflammation of the tonsils, is due to infection with bacteria, and may be brought on by exposure to cold and wet, the irritation of impure air, or the improper use of the voice; it also occurs in acute infectious diseases. It may be a simple inflammation or attended with the formation of whitish, cheesy masses in the tonsils (*follicular tonsillitis*), or accompanied by abscess formation (*phlegmonous tonsillitis* or *quinsy*). The symptoms are a dry painful condition of the throat, with difficulty of swallowing, a rise of temperature, chilliness, and general aching. In quinsy there is great pain and the patient is very much prostrated.

Nursing.—The patient usually feels ill to an extent out of proportion to the local conditions. He should, therefore, be made as comfortable as possible by means of local applications. The neck should be surrounded by hot packs made by taking a long towel, wringing one end out in water as hot as can be borne, and wrapping it around the neck from the ear to the shoulder, the wet end being next the skin. The mouth and throat should be washed with an antiseptic solution, such as peroxid of hydrogen. If the case is a severe one, liquid food should be given. The bowels should be kept open and free perspiration induced. Every severe case of tonsillitis, especially if quinsy has developed, should be treated by a physician.

Croupous Pneumonia.—Croupous pneumonia, which is acute inflammation of the proper substance of the lungs, is generally confined to one lung; when both lungs are involved it is called "double pneumonia." The disease usually begins suddenly with a chill or a chilly feeling which lasts a long time, high temperature (102 to 104° F.), pulse rapid and full (100 to 120 or above), sharp pain in one side, and the patient can breathe only with difficulty; consequently the respirations are quickened to thirty-five or forty per minute, they are shallow, and often irregular. There is a short dry cough, accompanied later by a rust-colored tenacious sputa, which must be kept for the doctor's inspection. The bowels are constipated, and the urine is scanty and high-colored. Delirium is not uncommon.

About the seventh or the ninth day there may be a sudden drop in the temperature, profuse perspiration, and a general improvement may take place, while in severe cases a sudden drop of temperature to subnormal, small, rapid pulse, coldness of extremities, and a blue appearance would indicate collapse, which must be met with stimulants and heat to the body and a mustard plaster over the heart. If the patient cannot swallow, the stimulants must be given per rectum.

Until the arrival of a physician the nurse may apply to the chest flaxseed or mustard poultices or fomentations. The room must be a sunny room, having an open fire if possible, and be kept well ventilated, free from draughts, and the temperature at 70° F.; if the perspiration is very profuse, the patient should be wiped dry with warm towels, and fresh clothing which has been well aired be put on. When the physician arrives he will give directions, which must faithfully be followed. He may order ice-bags or compresses, which will often give great relief, or hot poultices, which must be changed every two or three hours. Some physicians object to poultices on account of their weight and because of the frequent change fatiguing the patient, and prefer to envelop the chest in a cotton jacket, which can be removed gradually by cutting off from the bottom about 2 inches each day. The cotton jacket is readily made by basting two layers of sheet cotton-wool inside an undershirt. Oil silk is basted on the outside to prevent evaporation of the moisture exhaled from the skin. When the temperature is very high, cold baths are given, which, besides reducing the fever, will quiet the respirations and soothe the patient.

The *diet* must be liquid and nourishing—milk, broths, beef-juice, koumyss, egg-nog, wine whey, etc. The patient must be kept in bed, perfectly quiet. The prostration is often great, in which case there is danger of heart-failure. The disease reaches its height about the seventh or the ninth day. As the patient improves the diet is increased to soft solids—custards, puddings, cream toast, eggs, scraped-beef sandwiches—gradually preparing the way for a more solid diet. Pneumonia is a self-limited disease; hence the nurse must do all in her power to support life until it has run its course. It is also infectious through the expectorations; the sputum-cup (Fig. 87), lined with paper, which can be taken out and burned and the cup boiled about three times a day, should be used to receive the expectorations.

Bronchitis.—Bronchitis, which is an inflammation of the bronchial tubes, is caused by exposure to cold, especially when the body has been overheated. It is also a complication of some of the infectious diseases—measles, influenza, and typhoid fever. An acute attack begins with chilliness, a sore and tight feeling in the chest, increased by coughing, which at first is dry, but later is accompanied by a muco-purulent sputum, which becomes very profuse as convalescence sets in; the temperature is 100 to 101° F., with a corresponding increase of the pulse. Hot mustard poultices or fomentations must be applied to the chest, and hot drinks and hot mustard foot-baths be given. For the relief of the dyspnea, which is difficulty in breathing, the patient must be raised into

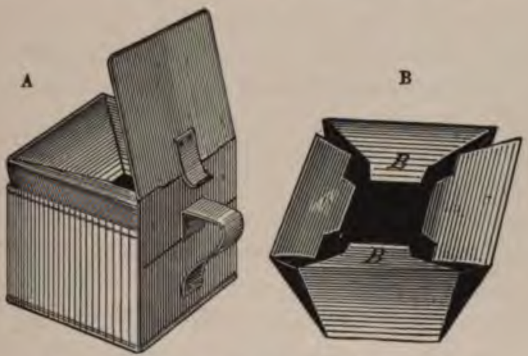

FIG. 87.—Sputum-cup: A, the cup; B, the paper lining.

the best breathing position possible and be given inhalations of steam. If the breathing is very difficult, the patient apparently dying from suffocation, an emetic should be given to expel the mucus from the tubes, and heat applied over the heart.

The air of the room must be kept moist and the temperature even (70° F.). The diet should be liquid. The patient must be guarded from all draughts, the bowels be kept open, and stimulants be given if the pulse indicates heart-failure.

Asthma also calls for heat over the heart and lungs, inhalations of steam, hot drinks, hot foot-baths, and plenty of fresh air.

Pleurisy.—Pleurisy is inflammation of the pleura, the membrane covering the lungs. The *symptoms* are severe pain or "stitch" in the side, short, dry cough, and shortness of breath, owing to the pain caused the patient in breathing. There may be little or no expectoration, and the cough may be suppressed on account of the pain the coughing gives the patient. Hot mustard fomentations should be applied over the seat of the pain. If there be no mustard at hand, plain fomentations or a flaxseed poultice may be used; the patient should be propped up with pillows, thus making the breathing easier.

If there is effusion of liquid into the pleural cavity, the amount of urine passed may be very small. The amount excreted must be measured and reported. An increase in the amount is a very good sign, as it shows that the effusion is being absorbed. The effusion into the cavity causes pressure upon the heart, the lungs, and other organs, which may be pushed out of place; *paracentesis* or *tapping* is then performed, and the amount of liquid drawn may vary from a pint to three quarts. Paracentesis is performed by plunging a large needle or cannula and trochar through the chest wall and attaching the instrument by a tube to a vacuum pump. This operation is performed by the physician. The site of the puncture must be prepared as for a minor surgical operation.

Empyema.—Sometimes the collection of fluid in the pleural cavity becomes purulent; then we have what is called "empyema." For this condition the pus is removed, a drainage-tube is inserted, and an antiseptic dressing put on. In simple cases, when only a small opening is made with a large hypodermatic needle or a very small trocar, a piece of adhesive plaster or collodion dressing will be sufficient to cover the opening. The nurse of course prepares antiseptically for the operation. It is remarkable to see the great change for the better that takes place after the operation, providing there are no complications.

The temperature must carefully be watched; its rise may indicate a fresh collection of pus in the cavity. In case of emergency, when the cavity has rapidly filled up and the patient is in danger of dying during the absence of the physician, the nurse will be justified in drawing off some of the fluid, but it is generally well to ask the attending physician, if he lives at a distance and the nurse is distant from other medical aid, what he would like her to do in this emergency. end.

Heart Diseases.—In nursing patients with diseases of the heart, the most important point is to keep them in as comfortable a position as possible. All unnecessary loads should be removed from the heart and the patient must be made to lie down and keep quiet. If there is difficult breathing, the patient should be propped up in bed or in an easy chair, supported with pillows, and provided with a rest for his arms. It is necessary to insist on freedom from exertion, excitement, or worry, and all sudden, startling noises should be avoided. Fresh air is important, but it must be warm.

The action of the heart may be slowed by applying ice. In applying the ice-bag it should be supported, so that its whole weight may not be on the chest (Fig. 88). The bag should not lie with the rubber against the skin.

When massage is required to keep up the circulation, the nurse should avoid shaking or otherwise disturbing the patient.

The diet requires special attention. It should be light but nourishing, and given in small but frequent meals. Since there is a tendency to flatulence in heart disease, foods that tend to increase this condition, such as starch and sugar, should be restricted. The bowels should be moved daily. The nurse should carefully watch the patient's pulse and report any changes to the physician.

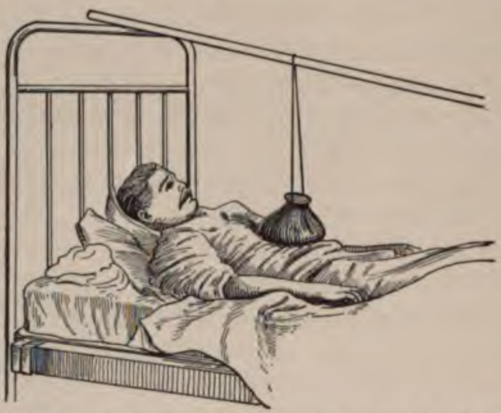

FIG. 88.—Application of ice-bag to chest; extemporized method of support (after Hoxie).

Angina pectoris is a neurosis of the heart associated in many cases with disease of the base of the aorta and of the blood-vessels of the heart. It is characterized by paroxysms of agonizing pain in the region of the heart and extending into the arms and neck, intense oppression, a sensation of impending death, pallor of the face, followed by profuse perspiration, etc. During the attack the nurse may apply heat to the chest and give alcoholic stimulants.

Dilatation of the heart may occur as the result of unusual exertion or from nervous excitement. It should be overcome by rest and stimulation. *Hypertrophy* is a thickening of the heart muscles. It may occur from continued overwork, as in athletics, or from chronic overfeeding, as in excessive beer drinking. It is accompanied by headache, pain in the heart, ringing in the ears, and flushing of the face.

Endocarditis is inflammation of the lining membrane of the heart. It is usually the result of rheumatism, pneumonia, or scarlatina, and it frequently affects the valves of the heart, producing *valvular disease;* that is, a thickening or shrinking of the valves, so that they do not properly close the orifices, resulting in *regurgitation*, or flowing back of the blood. The symptoms of valvular disease are difficult breathing, irregular pulse, pulsation of the large veins of the neck, and blueness of the face.

Pericarditis is inflammation of the membranous sac which surrounds the heart. It is attended with shortness of breath, swelling of the legs and feet, and indigestion. *Fatty heart* is a condition in which the heart muscle contains deposits of fat.

Acute gastritis, acute inflammation of the stomach, may follow the taking of too much food, of improper food (irritating or decomposed food), alcohol, fluids that are too hot, corrosive or irritant poisons, etc.

The symptoms in mild cases are those of mild indigestion. In severer cases there occur burning pain in the epigastrium, nausea, vomiting, slight fever, etc. In extremely severe cases, such as follow the ingestion of irritant or corrosive poisons, there occur, in addition to the foregoing symptoms, intense thirst, small, feeble, rapid pulse, general manifestations of collapse, and frequently death.

Treatment of Gastritis.—A physician must be summoned, and in the mean time the nurse can apply hot fomentations or a mustard plaster over the seat of pain. If it is known that a poison has been taken within a short time, she should try to wash out the stomach, which operation, in the absence of the stomach-pump, can easily be done by using a fountain syringe or by giving large quantities of warm water to drink until the gastric contents become clear. The patient must be fed by enemata, and the stomach be given absolute rest for a few days, unless otherwise ordered; then the nurse should begin the feeding with a few drops of milk and lime-water, equal parts; if this is retained, she should gradually increase the dose and the interval between the doses. Crushed ice, ice-cream, iced champagne, or very cold Seltzer water, given in very small quantities, will often be retained. The patient should be fed slowly, and the diet gradually be worked up to egg-nog, oyster-broth, raw oysters, arrowroot, custards, etc., though the change of diet must not be made without the physician's orders.

Peritonitis is inflammation of the peritoneum, the serous membrane lining the abdomen. Peritonitis may be due to blows upon the abdomen, to inflammation of any of the organs in the abdomen covered by the peritoneum (especially the vermiform appendix), or it may follow an operation upon the abdomen. It may also occur in typhoid fever after perforation of the bowel, the contents of the latter escaping into the abdomen and the peritoneum becoming inflamed. There may be a chill, severe pain in the abdomen, which is distended and tender, vomiting, constipation, high temperature (from 101 to 103° F.), small, rapid pulse, and high and shallow respiration, owing to the pain caused by breathing. The expression of the face is drawn and anxious. The patient when in bed lies on the back with the knees drawn up, which position relaxes the muscles of the abdomen. A roll or a pillow placed under the knees will remove the strain that the patient has to make in order to keep up the knees.

Treatment.—Poultices or fomentations are applied to the abdomen, and the weight of the bed-clothes relieved by a cradle. The nurse must not give purgatives on her own responsibility. When convalescence begins the patient should be fed well with nourishing food, but return to solids should not be made without the physician's orders. The nurse will know at the end of a few days if the patient is to live or to die: if death is imminent, there will be loss of strength and collapse.

If the peritonitis is the result of perforation of the bowel, as in typhoid fever, hot fomentations must be applied, the patient to be kept absolutely quiet, and the foot of the bed elevated. Gas-accumulation can be relieved by inserting a rectal tube.

Appendicitis is inflammation of the vermiform appendix, the inflammation being sometimes due to the presence in the appendix of foreign bodies, such as grape-, lemon-, orange-, or melon-seeds, or concretions of fecal matter; other causes are intestinal catarrh, a blow on the abdomen, unusual physical efforts, or cold. Appendicitis is more common in men than in women for various reasons. Men work harder and are subject to more violence than women. The appendix is supplied with blood from one artery, a branch of the mesenteric artery which supplies the cecum. *Catarrhal appendicitis* is generally caused by extension of catarrh of the cecum to the appendix. If an abscess forms, an operation is necessary or perforation may take place, resulting in septic peritonitis and death within a very few days. The operation is also considered in the catarrhal form, as the patient is always liable to recurrent attacks, each subsequent attack increasing the danger to life, that may result in perforation and general peritonitis. Perforation is a dreaded complication caused by the rupture of an abscess into the peritoneal cavity. The *symptoms of perforation* are sudden pain, a small, wiry pulse, and subnormal temperature; or there may be a rise of temperature, and the distention of the abdomen may be increased.

The symptoms of appendicitis are severe pain, swelling, rigidity of the muscles, and tenderness on the right side of the lower part of the abdomen, rise of temperature, constipation, etc. Frequently the patient vomits at the onset of the disease; later, vomiting may recur—a very bad sign.

A patient ill with peritonitis lies in bed with both knees drawn up, and usually in appendicitis the same position is assumed, or the right knee alone may be drawn up.

The treatment is medical and surgical. For a catarrhal attack the treatment is absolute rest on the back, liquid diet, an ice-bag, or hot turpentine or mustard fomentations or poultices. The appendix is removed when there is an abscess and also in case of perforation (unless the shock is too great).

The writer here desires to impress upon the nurse the absolute necessity of perfect antisepsis for this operation, as it can only be successful when she has obtained thorough surgical cleanliness. The source of infection at all operations (not only when the abdominal cavity is to be opened) is often the hands of the surgeon, the assistant, or the nurse, and the instruments, sponges, and dressings; any fault or neglect on the part of the nurse, no matter how small, may cost the patient his life.

The work of the nurse until the arrival of the surgeon, who must be summoned immediately, lies in securing for the patient perfect rest and quiet. The bowels must be moved with a soapsuds or an oil enema, gently and carefully given. When the surgeon arrives he will decide as to the line of treatment; if an operation is decided upon, everything must be prepared antiseptically as nearly as possible under the existing circumstances.

The question is often asked, whether a nurse is justified in giving morphin before the arrival of the doctor. A safe rule for the nurse is never to give morphin in any acute abdominal condition (or in any other condition) without specific directions from the doctor. The morphin masks the symptoms so that the physician cannot judge the case properly, it may stupefy the patient so that he cannot give clear answers to questions, and it frequently produces undesirable effects in case an operation has to be performed. Usually sufficient temporary amelioration of the pain may be produced by an ice-bag, or sometimes by a hot-water bag.

After a catarrhal attack, when the appendix has not been removed, the patient must be very careful with regard to diet and personal hygiene, and should wear a flannel abdominal protector, because sudden changes of temperature are liable to affect the bowels, which are very sensitive, and cause a recurrent attack.

Dysentery is inflammation of the mucous membrane of the large intestine. The *symptoms* are chilliness, some fever, small and frequent movements from the bowels mixed with blood and mucus, and tenesmus, or constant straining and painful efforts to evacuate the bowels. Dysentery begins with diarrhea, straining, griping pains in the abdomen, which is very tender, and the characteristic movements, which are very offensive and which must be thoroughly disinfected.

Treatment.—The patient must be put to bed and use the bed-pan in his defecations; he must not be permitted to get up, as there is danger of ulceration, perforation of the intestine, and peritonitis. A cathartic of magnesium sulfate, 2 teaspoonsful, or 1 ounce of castor oil with 15 drops of laudanum, should be given to clear the bowels of the irritating substance; the laudanum will relieve the pain and the desire to stool. Hot turpentine or mustard poultices or fomentations should be applied to the abdomen.

The *diet* should be liquid—boiled milk, gruels of flour, corn-starch, or arrowroot. The bed-linen and body-linen must be kept perfectly clean and changed often. Dysentery is not contagious, but if the movements are not disinfected, they decompose and the *epidemic* form may result.

Cholera morbus, which is inflammation of the mucous membrane of the stomach and intestine, is caused by irritating food, such as unripe or decayed fruit and vegetables, and also by sudden changes in temperature. There are severe cramps in the stomach and abdomen, violent vomiting and purging, the discharges later resembling rice-water; great prostration.

Treatment.—Hot applications to the abdomen and body must be resorted to at once, and stimulants administered if necessary. Ice will relieve the intense thirst. A liquid diet must be given—milk, gruels, broths, and egg-nog.

Acute Diarrhea.—In treating acute diarrhea the patient must be put to bed and fed on liquid diet—boiled milk, corn-starch, rice and flour gruels, etc. A laxative of castor oil 1 ounce and laudanum 15 drops may be given to remove the irritant and relieve the pain.

Uremia is caused by the retention in the blood of certain waste materials which should have been eliminated by the kidneys.

Uremia may abruptly begin with convulsions, followed by coma, or there may be premonitory symptoms, some of which are headache, nausea, vomiting; scanty urine deficient in urea; dimness of vision; the mind dull, deepening into stupor, followed by coma. Sometimes covulsions precede the coma, which terminates in death unless the poison causing the attack is rapidly eliminated. The pulse is slow and full; temperature subnormal. When the convulsions occur they may rapidly take place one after the other, the patient generally being unconscious between the attacks. The pulse during the convulsions may be found small and rapid, and the temperature be raised.

The treatment must be prompt. If the nurse is far from medical aid, the first thing to be done is to put something between the patient's teeth to prevent the tongue being bitten. The patient should then be given a hot pack or a hot-air bath, which will increase the activity of the skin and also act as a sedative.

The bowels must be moved with salts or by an enema. The second convulsion can be controlled by giving a little ether if it is at hand; if not, then the hot bath should be repeated, hot drinks be given, heat applied over the kidneys and to the feet, cold to the head. If the pulse is weak, heart stimulants should be administered. Uremia may occur in scarlet fever, pregnancy, Bright's disease, and in other diseases.

Cerebro-spinal meningitis is an infectious disease beginning with a chill, very severe headache, pain in the muscles of the neck and back, that very soon become rigid, so that the head is bent backward and the back is straightened; the arms and legs are flexed; vomiting, delirium, and constipation are present; there may be intolerance of light and sound and deafness or blindness. After a few days a spotted rash may appear. The disease attains its height in a very few days, and the tempetature may rise to 105° F. or higher, with convulsions, stupor, coma, and death, or the symptoms may gradually disappear and the case end in convalescence.

Treatment.—Ice-bags or ice poultices are applied to the back of the neck and spine, and it is a good plan to apply heat to the extremities to avoid any depressing effect from the cold. The diet must be liquid. If the patient cannot swallow, he must be fed by enemas, and the nurse should do all in her power to sustain life. Stimulants must be given if the pulse indicates heart-failure.

Cerebral apoplexy, or cerebral hemorrhage, is caused by the bursting of a blood-vessel in the brain, which accident may be due to disease of the cerebral blood-vessels. The size of the clot varies, it may merely be a capillary oozing, or it may fill a hemisphere of the brain, and the amount of paralysis is due to the situation and the size of the clot. If the clot is small, the paralysis may be slight and finally disappear.

The *premonitory symptoms* are headache, dizziness, languor, ringing in the ears, and a numb, weak feeling on the affected side, and there may be gradual paralysis without unconsciousness.

If an attack comes on suddenly, the patient either falls back in his chair or to the ground unconscious; the face is flushed, the breathing stertorous, noisy, and slow, and the cheeks puff out at each breath; the pulse is slow and full, and the temperature subnormal, due to shock. The pupils may be unevenly contracted.

Treatment.—The head and shoulders must be elevated, the clothing about the neck be loosened, ice applied to the head (particularly to the affected side), and heat to the feet and the body. The mucus must be wiped from the mouth and throat. There should be given a cathartic of croton oil, 2 drops in a little sweet oil or glycerin, dropped on the back of the tongue, where it will be absorbed, and the bowels be emptied by enemas. Stimulants must not be given unless ordered by the doctor or unless the pulse is feeble, as they increase the hemorrhage into the brain. To obtain *involuntary swallowing* the liquid or powder is placed far back on the tongue and the nostrils and lips are closed.

The nurse must watch for convulsions, which may be tonic or clonic. A *tonic* convulsion is a continued rigid contraction of a muscle or muscles, while a *clonic* convulsion consists of alternate contractions and relaxations of the muscle or muscles. As a convulsion may begin tonic, it is very important for the nurse to notice in what part of the body the convulsion begins, and if the pupils of the eyes change during the day, or if they remain dilated or contracted, or if they are unevenly contracted.

If recovery takes place, the patient must have nourishing and easily digestible food. He will need the most careful nursing on account of the paralysis. The nurse should guard against bed-sores by keeping the patient and the bed perfectly dry and clean. The patient must be kept absolutely quiet and free from all mental excitement: another shock generally follows the first, as the blood-vessels of the brain are in a diseased condition. A certain amount of paralysis usually remains, according to the degree of severity of the case. One patient may recover consciousness, be thoroughly sensible of everything that is being said and done, but be totally unable to speak, this difficulty lying not with the muscles of the tongue, but in the brain. Another patient may be able to utter words, but unable to connect them so as to make himself intelligible. Because a patient is unable to speak it does not follow that he is also deaf. Many times the hearing is very acute, the faintest whisper being heard; hence the nurse must be very careful as to what she says when in the patient's room.

Differential Diagnosis.—As apoplexy is often mistaken for intoxication or for opium-poisoning when the patient is found in the street, it will be well for the nurse to remember that in *apoplexy* there is unconsciousness, stertorous breathing, and paralysis, the movements of the patient being confined to the sound side of the body; the pupils of the eyes may be found contracted or dilated or uneven. This contraction denotes irritation, and the dilatation denotes compression of the brain. In *opium-poisoning* the pupils are very narrowly contracted—the size of a pin's head; there is unconsciousness, but no paralysis. In *intoxication* the pupils may be contracted or moderately dilated, dilating still more as the patient comes to his senses. The smell of alcohol on the breath is of no assistance in determining the condition of the patient, as spirituous liquor may have been given by the first person who found the unconscious patient.

Paralysis.—*Hemiplegia* is paralysis of one side of the body; *paraplegia* is paralysis of the lower half of the body; and *monoplegia* is paralysis of one limb, such as an arm or a leg. By *paralysis* is meant total loss of power or motion and of sensation; that is, the patient cannot move the part paralyzed because there is no power or motion in it, neither may there be any feeling or sensation. When the loss of power is only partial, this condition is called "paresis." It will be appropriate to say here that the nerves have their seat in the brain, and at the base of the brain they cross from side to side; those at the right side supply the *left* side of the body, and those at the left side supply the *right* side of the body, so when the right side of the brain is injured or diseased it is the left side of the body which is paralyzed, and *vice versâ.*

The treatment of paralysis consists in good hygienic surroundings. Extreme cleanliness is necessary to prevent the formation of bed-sores. Massage and electricity are employed, which in some cases have effected partial and even complete recovery.

There is complete helplessness of patients in this class of cases; they are totally dependent upon the nurse; they feel their helplessness very keenly, and also appreciate the kindness and cheerfulness with which the nurse does everything for them.

Epilepsy.—Epilepsy is a disease of the nervous system, characterized by attacks of sudden loss of consciousness and coördination, with tonic and clonic convulsions. The attack may occur either with or without warning. The patient may fall to the ground entirely unconscious, with a pale face and the breathing be almost stopped. After a few seconds this passive condition passes away and there follow convulsions, which cease after a few minutes, and the patient falls into a deep, heavy sleep, awakening without knowing what has happened. The patient, however, may fall, remain unconscious, and recover in a few minutes. In the milder form the patient suddenly stands still or may pause in what she is doing, then recovers her senses and continue her work. After the severe attack there generally remain headache, despondency, and a very tired feeling.

Some patients have the attacks only in the daytime, while others have them at night. Some patients, again, can tell when an attack is coming on, and by doing certain things can ward it off, as, for instance, by rubbing the part where the sensation is first felt, or if the thumbs or toes turn in by straightening them out. This sensation is called the "aura epileptica;" that is, the sensation which sometimes comes before an epileptic fit and by which the patient can tell when the fit is coming on.

The treatment of epilepsy lies in first putting something between the patient's teeth to prevent the tongue being bitten; then in loosening the clothing about the neck and chest, and in not restraining the patient unless the body movements are excessive, in which case the arms and legs are grasped and the movements followed. One can thus keep the patient from hurting herself or others.

The nurse must notice the eyes—are they fixed? are the pupils dilated?—the color of the face, and on which side the convulsions began, and whether the unconsciousness is complete or partial. Epileptic patients should never be left alone, but should be watched day and night, as a fit of temporary insanity may take the place of convulsions and the patient may injure herself or others.

The patient must be kept free from all mental and physical excitement, and take plenty of exercise in the open air. The *diet* may chiefly be vegetable. A free action of the bowels should be secured each day.

Hysteria is very often mistaken for epilepsy, though one can generally recognize hysteria by noticing that the patient takes care not to hurt herself; she cannot bear the eyeball to be touched; there is no grinding of the teeth nor biting of the tongue, nor the complete unconsciousness found in epilepsy. There are different forms of hysteria, from simple fits of laughing, crying, and screaming, and imagining all sorts of ills and ailments, to hysterical convulsions, paralysis, and insanity. In dealing with this class of patients, and indeed with all nervous patients, the nurse needs an ample amount of patience, tact, and firmness. A strict watch must be kept over such patients; they are very skilful in deceiving their attendants; frequently morphin and other things received from friends are hidden in the bed and taken when the nurse is attending to other duties. Various treatments are prescribed for the simple form, from a cold bath to an emetic, the patient being under the impression that she is taking morphia; the violent vomiting and retching that ensue cure both the hysteria and the morphin habit, but moral suasion must be tried first.

In some cases there is also complete loss of sensation in certain parts of the body, while in other cases there is pain in the head, stomach, abdomen, and limbs. This pain is not imaginary to the patient; to her it is very real and calls for treatment. Through love for sympathy, however, the patient will pretend to have pain when she has none, and when her attention is drawn to other things the pain will vanish.

It is the same with hysterical paralysis: the patient really believes that she is paralyzed and cannot walk. Encouragement does a very great deal for this imaginary condition, and frequently patients will gradually improve if encouraged to walk, and the paralysis will disappear in a very short time. All excitement must carefully be avoided, and hysteria must never be mentioned before the patient. *Globus hystericus* is a feeling of choking, a sensation as of a ball rising in the throat.

Neurasthenia is nervous prostration brought on by overwork and study and by other causes. Moral treatment is of as much importance here as in hysteria, with the exception that one cannot sympathize with an hysterical patient, while a patient ill with neurasthenia requires sympathy, together with the firmness, kindness, and encouragement that are used in hystèria.

The treatment of nervous prostration and also of the severe forms of hysteria is known as the *rest cure*, which is complete isolation from family and friends and perfect rest of mind and body. The patient is allowed to see no one but the physician and nurse, since the presence of friends requires conversation and mental effort. Absolute rest in bed is necessary. The food must be nourishing, easily digestible, and given at regular intervals. Massage and electricity are employed to take the place of active exercise. For the treatment to be successful the rules laid down by the physician must be faithfully carried out.

Dropsy is an unnatural collection of fluid in the tissues or the cavities of the body. Cardiac dropsy usually begins in the feet and ascends.

Diabetes is of two kinds—*diabetes mellitus*, characterized by the presence of grape-sugar in the urine, and *diabetes insipidus*, characterized by the excretion of a very large quantity of pale urine of a low specific gravity, and generally free from albumin and sugar. In diabetes mellitus the urine is increased in quantity. Sometimes the amount passed in the twenty-four hours is very large, from 2 to 6 quarts; the specific gravity of the urine ranges from 1015 to 1050.

Nursing.—The *diet* should be restricted in this disease; everything containing starch or sugar being omitted, saccharin and glycerin being substituted. Meats of various kinds may be given, and also such vegetables as celery, lettuce, cauliflower, cabbage, tomatoes, green beans, onions, and spinach. Foods to be avoided include wheat bread, crackers, pastry, potatoes, oysters, liver, peas, beets, carrots, parsnips, turnips, sweet fruit, chocolate, cocoa, syrup, preserves, and malt liquors. Fresh air and regular exercise are of value, but the patient must not be allowed to overexert himself. All undue exposure should be avoided. It will be the nurse's duty to keep an accurate account of the amount and frequency of urine passed, and also to see that only the diet ordered by the physician is given.

Gout.—Gout is due to the collection of sodium urate in the blood and joints. It is characterized by pain and swelling of the great toe, and is accompanied by insomnia, restlessness, irritability, and dyspepsia.

Nursing.—The affected limb should be raised so as to be on a level with the body, and wrapped in cotton-wool or covered with warm fomentations or wet cloths soaked in lead-water and laudanum. Water-drinking should be encouraged, and no more should be eaten than is absolutely necessary to satisfy hunger. Hot baths followed by massage may be ordered by the physician.

Rheumatism.—*Acute articular rheumatism* is characterized by inflammation of the joints. There is also high temperature (103 to 104° F., and sometimes higher) profuse acid perspiration, pain, tenderness, and swelling of the affected joints.

Nursing.—The bed should be made up with blankets, and a flannel bed-gown be worn by the patient, for the reason that sheets and gowns of muslin become very wet and cold with the perspiration. The utmost gentleness must be observed when changing the bed- and body-linen or when changing the position of the patient, because of the extreme pain.

The room must be kept of *even temperature* (68° F.), and the patient be guarded against all draughts, the affected joints being wrapped in cotton batting. The diet should consist of milk, soups, egg-nog, etc. and the thirst relieved with lime- or lemon-juice.

The medicinal treatment is generally salol, salicylic acid, and salicylate of sodium to relieve the pain and reduce the temperature. When giving the salicylates the nurse must watch for the physiological effects, which are noises in the ears, deafness, nausea, vomiting, perspiration, and delirium. The fever may be controlled by the cold pack or cold bath, or bathing with tepid water. Massage and electricity are often employed.

The pain may move from joint to joint, or may affect only one joint. When only one joint is affected, it is called "monoarticular" rheumatism, and if more than one joint, it is called "polyarthritis." As there is great danger of heart-failure, the patient must not be allowed to rise from the bed without permission from the doctor. Severe cases of the disease may develop cerebral symptoms: there will be restlessness, delirium, very high temperature, with a small, rapid pulse, pale and rather blue face, convulsions, and death.

Acute muscular rheumatism is an affection of one or of a group of muscles. The disease may repeatedly occur in the same patient; therefore one attack does not mean immunity from another; there is always a tendency to the disease. Its *treatment* is similar to that of acute articular rheumatism. Cold and dampness must carefully be avoided, and the patient should wear woollen garments next the skin.

Diseases of the Skin.—A few words on skin diseases will close these medical discussions.

Acne, or **black-heads**, is due to the blocking up of the skin-glands, and is marked by the formation of small pimples. This condition is treated by regulating the diet with the intent of having it wholesome and easily digested, regulation of the bowels, and cleanliness.

Eczema is an inflammatory disease of the skin, and of it there are many varieties. It is often due to irritation through using hard soaps and to putting the hands in certain fluids.

Scabies, or the *itch*, which is contagious, may be acquired by shaking hands with a person thus affected or by touching anything that she has used. There is an intense itching of the hands between the fingers, of the axilla, and of the inner part of the thighs, that gradually spreads over the body. It is worse when the patient is warm, and especially when she is in bed.

Nursing.—A sulphur bath (p. 95) will probably be ordered by the physician. In this the patient should be immersed for twenty minutes. Vaselin will relieve the soreness caused by scratching. All clothing should be disinfected or burnt.

Ringworm is also contagious; a child thus infected should be isolated from other children.

Herpes zoster, or *shingles*, is often due to debility, to damp clothing, and exposure to cold.

Psoriasis appears in the form of whitened scales, especially upon the elbows and knees.

Erythema is a simple reddening of the skin in patches, due to irritation either local or general.

Urticaria, or **hives**, is a wheel-like eruption, due to indigestion, constipation, or the eating of certain foods.

Favus is a disease of the scalp and hair-roots caused by a vegetable parasite.

Alopecia areata is caused by a vegetable parasite which destroys the hair-roots in circular masses, causing circular areas of baldness.

Lupus is tuberculosis of the skin. It takes the form of raised, reddened, and hardened patches of thickened skin, usually about the face and neck.

Treatment of Skin Diseases.—The treatments of all skin diseases differ very much, each case being treated according to the method of the physician in charge. The utmost cleanliness with regard to the patient and nurse is necessary, many skin diseases being infectious.

Ointments are generally ordered for all the above-described cases, as they exclude the air and are very soothing. The nurse must be very careful to guard against infection, and to wash and disinfect her hands thoroughly after attending the patient, who must also be kept perfectly clean. Some of the skin diseases are very difficult to take care of; others, again, are almost disgusting in their character, and it is very hard for some nurses to conceal their feelings when dressing the parts; the patient, too, is often very irritable. All this calls for a great amount of patience, kindness, and sympathy on the part of the nurse, who must try to hide her emotions when doing the dressings, for the patients are very sensitive and narrowly watch her face. We have here a noble example in the Sisters of Charity, who, as was said by Dr. Myles Standish, "with kindness in their manner, gentle care in their hands, and the love of God in their hearts and souls, could care for and dress without expression of loathing and disgust the gangrene then so often seen in the surgical wards, and the most loathsome disease. All honor to them! They taught the world, both physician and the layman, the value of nursing."

Caring for the dead is one of the duties the nurse will have to perform. The writer need hardly admonish the nurse to be very sure that the last sacraments are received,[1] and that the friends be notified before the patient becomes unconscious. The nurse should remain with the patient to the end, and not let her die alone.

When the end has come the following instructions should be followed: Straighten the limbs, close the eyes by pressing the lids down with the fingers, and then leave the room to the family for a while. After the family have left the room the bed-clothes must be removed and a fresh under-sheet put on the bed; take away all pillows but one. Wash the body with soap and water and some disinfectant, and guard it against exposure the same as if the body were conscious. The rectum and vagina must be packed with cotton of any kind to prevent discharges. Sometimes it is necessary to pack the mouth and nostrils for the same reason. Put a napkin, drawers, under-vest, night-gown, and stockings on the body. Comb and dress the hair in the way that it was usually worn by the patient. Arrange the lips and prop up the jaw with a roll; do not bandage, as this will wrinkle the skin, it being desirable to have the face look as life-like as possible. Clean the nails.

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[1] The nurse should see that all her patients, Catholic or Protestant, receive the last sacraments before death.

If there are wounds on the body, they must have a fresh dressing put on; wounds about the head can be covered with a small cap made of black silk. Tie the limbs with a bandage and cover the body with a sheet. Put the room in perfect order and remove all signs of the illness. If the case has been contagious, the body must be washed with disinfectants and be wrapped in a sheet wrung out of the same; the funeral must be private and the room afterward fumigated (see p. 258).

VI. THE NURSING OF SICK CHILDREN.

Care of the New-born.—The sudden contact with the outer air is generally a shock to a new-born infant. The temperature of the room should be 76° F. for the first week, and the temperature of the water for the bath be 98° F. Everything should be made ready before beginning to bathe the baby. It should be wrapped in a blanket and one part at a time be bathed without the aid of soap. The body then is thoroughly oiled to remove the cheesy substance called "vernix caseosa" which protects the skin of the child while in the womb.

The nurse will find this cheesy substance very thick upon the scalp, and if not removed it may cause inflammation; indeed, it may cause inflammation if allowed to remain on any part of the body. After the body has been thoroughly greased, it must be washed with soap and water, care being taken that the soap does not enter the eyes. White castile is the best soap; it is the least irritating. The babe should be thoroughly dried and powdered with corn-starch, which is about the best powder to use for an infant unless the nurse can have talcum powder. Some physicians do not want the baby to have a soap-and-water bath after the oiling, but simply to have the oil wiped off and the baby dressed. The body of the babe should be examined to see that it is perfectly normal; any abnormality must be reported. The flannel used in giving the first bath should be burned.

Dressing the Cord.—The navel cord is dressed by wrapping it in sterilized gauze or antiseptic cotton, the binder put on, and the cord placed on the left side of the body, because if placed on the right side it would press upon the liver, which at birth is larger than the other organs, and which reaches down to the navel. The binder must not be pinned too tight or the gas cannot pass through the intestines.

Dressing the Infant.—The clothing of the new-born consists of a shirt, a diaper, socks, and a flannel slip, which, made after the manner of the muslin slip, fastens in front and extends from 8 to 10 inches below the feet. Over this comes the muslin slip, made about 2 inches longer than the flannel one. These slips afford warmth and lightness and also looseness, so that the body can expand, the body not being bound by bands about the abdomen and chest, as when the old-fashioned skirts were worn; the first of these skirts was generally pinned so tightly about the abdomen that the gas could not escape from the bowels, and the child had colic; the skirt was also brought up over the child's feet, so that they could not be moved. The second skirt was pinned so tightly around the chest that the chest could not expand. Taking the old method of dressing all together, the child was so uncomfortable that it cried a good deal, and every cause was thought of except that of the clothing being pinned too tight.

These two garments or slips can be put one within the other and both put on at once. In summer-time the waist of the flannel slip may be made of muslin, and the skirt be attached to it. All the garments are fastened with small pearl buttons, and if instead of flannel there is provided an elastic knitted-wool binder, which is slipped on over the feet, there will be needed only one safety-pin, and that for the diaper.

After the dressing the baby is laid in the crib or a clothes-basket, covered lightly, and the eyes shaded from the light. A baby should sleep during the first few days twenty hours out of the twenty-four, and will do so if it is left alone and not taken up for exhibition or to be rocked, or carried about, all of which tends to keep the child in a perpetual state of excitement, thus making it nervous.

Bathing the Baby.—Until the cord separates, which should be on the fourth or fifth day, the infant should be given a sponge-bath every morning, and after the separation a *tub-bath*. The temperature of the water must be 98° F., tested with a bath-thermometer. The child must be lowered gently into the water. The head is supported with the left hand and the body washed with the right. After five minutes the child is taken out, laid on a warm blanket, and thoroughly and gently dried. The skin must be kept well powdered, especially in the folds, as it is very sensitive and the air and water act as an irritant. If there is chafing, the chafed parts should be covered with soft linen.

Defecation and Urination.—The first bowel movements of a baby are dark, almost black; if cloths are placed inside the diaper, they can be burned. This color of the feces gradually changes to a bright yellow, which is the normal color; any departure from this condition shows that something is wrong and it must be reported, and also if the baby passes urine. Owing to the absence of coloring matter in the infant's urine, whereby it will not stain the diaper, and the small amount voided at the frequent urinations, it is often supposed that there is some obstruction. Close and frequent examination will clear up the condition. The diapers must be changed as soon as wet, and the parts bathed and powdered.

Nursing of the Infant.—The baby should be put to the breast regularly every two hours during the day, and only when it awakes during the night. It should suckle about fifteen minutes. A baby's stomach holds only about 1 ounce. Feeble babies must be fed oftener day and night. The mouth must be washed before and after each feeding with water to which has been added a little borax.

When the baby cries the nurse should find out the trouble. Very often the trouble is some little thing, such as being thirsty, which a little clear cold water will relieve. The infant must not be put to the breast unless it is time. Babies get tired of lying in the one position; they cannot turn themselves, and they waken and cry; therefore their position should be changed by taking hold of the clothing at the shoulders and limbs, and gently turning them; they will not awaken, and besides making them more comfortable the change will lengthen their sleep.

Artificial Feeding.—If the baby must be ***brought up by hand*** (bottle feeding), the physician will direct the character of the food to be given and the nurse must faithfully carry out his orders. At times the food consists of equal parts of milk and water until after the third month, when the water is gradually diminished, until at the eighth or tenth month, when the milk is sometimes given plain. If the milk seems to disagree with the infant, a teaspoonful of lime-water added may correct the trouble. The bottles and nipples, and the vessels in which they are washed, must all be kept perfectly clean. The rubber nipples must be cleansed inside and out, and should be boiled for about ten minutes before being used, and be kept in cold water during the intervals of feeding. The bottles should be scalded inside and then filled with cold water to which is added about a teaspoonful of baking-soda.

Milk Sterilization.—If it is required to *sterilize* the milk, sufficient should be sterilized to last twenty-four hours, and enough be put in each bottle for a single feeding. The mouths of the bottles should be stoppered with absorbent cotton, which will absorb the germs of the air and keep them away from the milk. The best apparatus for sterilizing milk is the Arnold sterilizer (Fig. 89). In the absence of this sterilizer the bottles can be placed in an ordinary boiler of cold water either on sticks or on a folded towel to keep them from touching the bottom of the vessel, the water reaching to the necks of the bottles. The water should come to a boil, then the boiler cover be put on, and the boiler removed from the fire, and left to steam for about one hour, after which time the bottles are taken out and put away in a cool place. The bottles must not be opened until needed. A bottle of the milk should be warmed by allowing it to stand a few minutes in a pan of hot water; the cotton is then taken out and the rubber nipple put on. If any of the milk is left in the bottle, it must be thrown away. Sterilizing the milk renders it free from germs. Pasteurization is the preferable method.

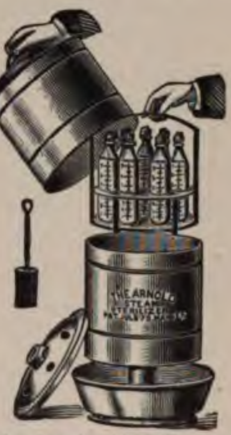


FIG. 89.—Arnold sterilizer.

Infant Food and Rules for Feeding.—Dr. Meigs' food is the favorite with some physicians. It consists of—

2 tablespoonsful of cream,
1 " of milk,
2 " of lime-water,
3 " of sugar-water.

Sugar-water is made by adding 8 teaspoonsful of sugar of milk to 1 pint of water. Lime-water must be added to the milk *after* sterilizing, not before, because in boiling it chemically changes and discolors the milk.

General Rules for Feeding (Rotch).

Age.	Intervals of feeding.	Number of feedings in 24 hours.	Average amount at each feeding.	Average amount in 24 hours.
1st week.	2 hours.	10	1 ounce.	10 ounces.
1–6 weeks.	2½ hours.	8	1½–2 ounces.	12–16 ounces.
6–12 weeks and possibly to 6th month.	3 hours.	6	3–4 ounces.	18–24 ounces.
At 6 months.	3 hours.	6	6 ounces.	36 ounces.
At 10 months.	3 hours.	5	8 ounces.	40 ounces.

At the time of feeding the baby must be taken on the nurse's lap, and it must not be allowed to doze over its meal; the baby, however, must not be hurried; the bottle should be taken away when the meal is over, and on no account should the child suck from an empty bottle. As the baby grows the intervals between the feedings are lengthened and the amount of food is increased. At seven months the baby may have milk slightly thickened with good bread or well-boiled oatmeal once or twice during the day; at ten months a little meat-broth made with barley or rice, without vegetables; at twelve months it should be weaned. The baby must have no solid animal food until after the second year, and even during the second year milk should be its chief food. It must not be given tea, pastry, stimulants, fruit, cheese, or soothing syrups, *or any medicine* without proper medical advice.

Infant Development.—At the third week the baby may be taken out doors for its first airing, being carried in the arms, not in a carriage, and with its head supported. A baby will hold up its head at from three to five months, will quickly recognize objects at from six to eight months, will sit alone at from the seventh to the eighth month, will walk at from the ninth to the twelfth month, will utter single words about the first year, and will begin to talk by the second year. A baby does not shed *tears* until the second or the third month of age, and if very sick at eight months the tears do not flow until convalescence sets in. The *teeth* begin to grow between the fourth and the seventh month. The *anterior fontanelle*—that is, the middle opening in the top of the head—rather increases in size during the ninth and twelfth months, and then decreases, and should be closed at eighteen months. The baby must not be allowed to stand alone before twelve months; the leg bones are not very strong and they may bend; when sitting up its head and neck should be supported. A baby should gradually increase in weight, after the second day, from 3 to 5 ounces each week. It loses weight during the first two days.

The *temperature* at birth is 99° F., *pulse* from 130 to 140 beats, *respirations* from 40 to 46 per minute. The temperature is usually normal after the first week.

Care of Premature Infants.—A *premature* baby is one born before full term; it is usually put in an incubator (Fig. 90), which supplies the infant with artificial body-heat until it reaches its full time. An *incubator* may be improvised out of a large wooden box by having one side so arranged that it will slide in and out; the top is also arranged to allow a piece of glass to be inserted and to slide in and out. Across the middle of this box are nailed three wooden strips, which will divide the box into two compartments, the lower one for the heaters, hot-water bottles or hot bricks, etc., the upper one being fitted with flannel or with cotton for the baby. The glass cover is kept open about half an inch at the foot of the box, to allow entrance of fresh air to the infant. A thermometer is also placed in the upper compartment, and an even temperature of 86° F. should be kept. When the baby is taken out to be changed or bathed the glass cover is drawn back: when the heaters are to be renewed the sliding side is drawn back. If a box cannot be procured, then the baby should be wrapped in cotton

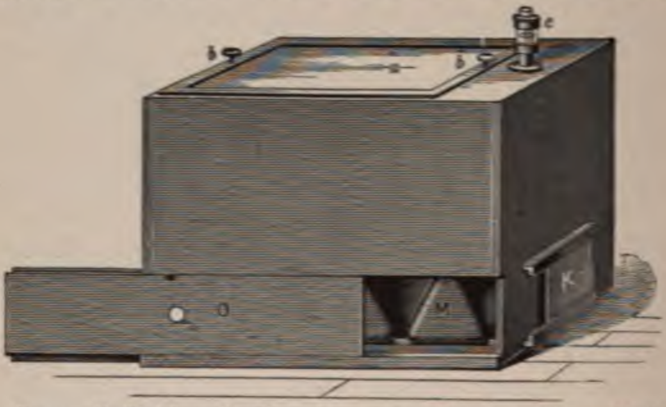


FIG. 90.—Modified Auvard incubator or *couveuse*: *a*, glass plate of the movable lid (*b*); *c*, ventilating tube containing small rotary fan; K, ventilating slide; M, hot-water cans; O, slide closing hot-air chamber.

and be kept in a basket near the fire. The temperature of the water for the bath must be 100° F.; the temperature of the room should be from 80 to 86° F., and the air be kept fresh and pure.

If brought up by hand, the baby is wrapped in cotton and flannel so arranged that the napkin can be changed without disturbing the baby, which must only be taken out of the incubator to nurse. Should the attending physician not allow the mother to nurse the infant, it should be fed every hour during the day with about two teaspoonsful of the mother's milk, given by means of a medicine-dropper.

Diseases of Infancy.—*Thrush* is a disease caused by a specific microörganism, and is characterized by small white spots on the tongue, the sides of the mouth, and the gums, that may spread to the throat and stomach. To prevent this disease, the mouth should be thoroughly washed after each feeding with water to which has been added a little borax. Should the disease appear, wash the mouth every two hours with borax-water (about 15 grains to 1 ounce of water).

Colic is relieved by the application of hot fomentations to the abdomen, and internally 1 teaspoonful of anise-seed tea every ten minutes until three doses have been taken; or plain water may be used should the tea not be at hand. Colic is due to cold or to the accumulation of gas in the bowels, and it generally yields to heat. The child lies with the knees drawn up, its cries are sharp, long, and loud, and they die away as the pain is relieved.

If the food does not digest well, the movements will be green, and in them there will be curds of milk. This condition must promptly be reported to the physician.

Lime-water or baking-soda (about half a teaspoonful added to the milk) will often correct the indigestion; the white of an egg well beaten up and added to about 6 teaspoonsful of cold water and a little sugar-water will also give the stomach a rest for a few days from milk digestion, besides being nourishing. If the baby is nursing, give half a teaspoonful of lime-water to the same amount of water before putting the child to the breast.

Bowel Obstruction.—Blood in the movements and constipation may be due to *obstruction* of the bowel. The child screams with pain; the abdomen is distended and tender; there is vomiting; the respiration is difficult, and there may possibly be convulsions. Until the arrival of the physician hot fomentations may be applied over the abdomen and a soapsuds enema given. To *give the enema*, everything must first be prepared and laid on a chair or a table near by; the nurse takes the baby on her lap, and lays it on its left side, with the knees drawn up. The tube, which for a very small baby should be the smallest tube that comes with the syringe, should be oiled, the air expelled, and the tube inserted in the rectum and the bulb gently squeezed. Pressure is applied over the rectum to retain the enema for a short time. In very young children a movement of the bowels may sometimes be provoked by merely introducing into the rectum the nozzle of the syringe or a lubricated finger.

Diarrhea.—In diarrhea the bowel-movements will be found acid, and sour-smelling, and will contain particles of undigested food; their color will be green. The baby has, besides the frequent movements, griping pains in the abdomen, vomiting, and restlessness. Diarrhea is often caused by improper feeding and changes in the temperature during the hot summer months. The extreme heat depresses the system and leaves it susceptible to the slightest change.

The treatment of diarrhea lies in getting rid of the irritation, by giving either an enema of half a teaspoonful of castor oil in hot, sweetened milk, or in the same amount of glycerin or of hot coffee. The baby should be kept in bed and be given for a few days, instead of milk, the white of an egg well beaten and added to an equal amount of cold water and a little sugar. When the vomiting is persistent the *stomach* is to be *washed* out. A small rubber catheter, with a funnel attached to one end, is used, and the washing is done in the same manner as that for an adult (see p. 73).

Vomiting may be caused by over-feeding, when the milk will be returned clear because the stomach cannot hold the amount ingested. This condition is not serious; but when the milk is returned curdled and sour, it is due to indigestion or it may be a symptom of some disease.

Cholera infantum begins with vomiting and diarrhea, weak, rapid pulse, and symptoms of lowered vitality and collapse.

Treatment consists of high starch-and-laudanum enemata to check the movements. Heat must be applied to the body or the child may be put in a hot bath (temp. of 105° F.). The food for a while is generally white of egg with 4 drops of brandy, alternated with 10 drops of Valentine's or expressed beef until the appearance of undigested food is removed from the bowel movements. The air of the room must be kept pure and fresh. When the child is strong enough to be taken out, it should be kept outdoors the greater part of the day. Cholera infantum is caused by impure air and improper food and exposure to heat.

Rickets, which is also due to improper food and impure air, is a disease of the bones owing to an insufficient amount of inorganic matter in the bones, that makes them soft, so that they easily bend. The child is restless when asleep, throwing off the bed-clothes; when awake it is fretful and irritable, and cannot bear to be touched; the abdomen is distended; the head is large; the anterior fontanelle (the middle opening in the top of the head) is found open at the time when it should be closed—that is, at about eighteen months; the teeth are late in appearing; there may be hydrocephalus (dropsy of the brain); and the long bones of the legs are so bent that the child is knock-kneed. There are other symptoms, all caused by the want of proper nutrition, and the child presents a sickly, puny appearance.

The treatment of rickets lies in nourishing food, perfect cleanliness, pure, fresh air, and massage, and in not allowing the child to walk, to stand, or to sit until its bones are strong enough to bear the weight of the body. Many cases of knock-knee are caused by the child being allowed to walk or to stand before the bones of the legs are strong.

Convulsions may be due to indigestion, pin-worms, etc., or to brain-excitement in rickets, or to irritation of the nerve-centres in teething. A great number of the diseases of children are ushered in with convulsions, which take the place of the initial chill in the adult. They may come on suddenly or gradually.

Treatment.—The first thing for the nurse to do is to put the child into a hot bath (the temperature about from 100 to 104° F.), without waiting to undress it, which can be done in the water. The head should be kept raised and cold applied to it. The hot-water bath will dilate the blood-vessels of the body, thus diverting the blood from the brain to the body. If the attack is the beginning of any of the eruptive diseases, the heat will also bring out the rash, besides relieving any pain in the abdomen or elsewhere. The baby is to be kept in the bath about five minutes, and is then taken out and wrapped in a warm blanket; an enema is given to clear the bowels. A physician should be summoned.

Teething, which usually begins about the seventh month, may be accompanied by many disturbances, such as diarrhea, indigestion, convulsions, all of which should receive attention.

Worms.—Delicate children are often troubled with worms, which are of three kinds—thread-worms, round-worms, and tape-worms. The first two are the most common. The *symptoms* are numerous: itching and rubbing of the nose and external parts, vomiting, restlessness, grating the teeth during sleep, convulsions, etc.; but we must wait until the worms are seen in the movements before attributing to them any of these symptoms. The worms are generally found in the lower bowel, and are passed in the movements, though sometimes they are vomited. The bowels should be thoroughly cleared by giving the child a dose of castor oil, followed by an enema of salt and water, and these measures continued daily until the worms have all been passed, no more being seen in the movements. The expulsion of a tape-worm belongs to the physician.

Protrusion of the bowel may be remedied by placing the child on its back and elevating its buttocks. The parts should be washed with tepid water and the bowel replaced, then a pad or compress wrung out of ice-water be applied, and kept in place with a napkin. If this treatment does not succeed, a physician should be summoned. Protrusion is often caused by constipation and the straining efforts of the baby. A baby should be taught regular habits, which, with a little patience, can be established.

Ophthalmia neonatorum is a purulent inflammation of the conjunctiva, which is one of the coats of the eyeball. It is a very serious variety of ophthalmia, generally caused by infection during birth from the maternal discharges. In this case the fault usually lies entirely with the nurse in not cleansing the eyes immediately after the head is born, and also in not washing the baby's hands, because in this way any mucus on its hands is rubbed into the eyes; it is also caused by using the same cloth and water for washing the eyes that have been used for the body. Any redness of the eyes or the eyelids must promptly be reported. If cold compresses are ordered, they must be changed every two minutes.

Syringing the eyes is best done with a medicine-dropper. The dropper is filled with the ordered solution, which may be of boric acid: in applying the solution it should flow from the outer to the inner corner of the eye, thence to a piece of cotton or of compress. The eye must be kept perfectly clean, and all pieces of cotton or compress used about it must be burned. Ophthalmia is a germ disease and is highly contagious. If the nurse has to touch the eyes with any solution, she should twist a piece of absorbent cotton around the end of a toothpick or a match-stick, a fresh piece being used for each eye, these eye-swabs being burned immediately afterward. These cases are very fatiguing, but the baby's sight depends upon the faithfulness with which the physician's orders are carried out. Many cases of blindness are due to neglect. The nurse must protect herself by not touching her face, eyes, or hair unless her hands have been thoroughly washed and disinfected. Everything employed about the eye or eyes must be burned, and on no account be used about other parts of the body.

Snuffles, or cold in the head, may be relieved by keeping the baby warm, oiling the outside of the nose, and keeping the nostrils clear by cleaning them with a small piece of cotton twisted around a match-stick.

Infant paralysis is recognized by the baby having no power over its limbs. Sometimes the affection is ushered in with convulsions and a high fever, and vomiting, then follows a wasting of one or more muscles. The limb is at first tender, and the baby may cry when it is touched. The baby must be kept warm, good nourishing food be given, and massage and electricity applied.

Tongue-tie.—Sometimes the band beneath the baby's tongue is too short and the baby cannot nurse. It is then *tongue-tied*, and the band will have to be snipped. This is a simple and almost painless operation, taking only a very few minutes, and no anesthetic is required, neither is there any loss of blood, except in some cases in which the scissors are kept close to the tongue rather than toward the jaw bone. The nurse can see the baby's *tongue* by placing a little sugar on the lower lip of the baby; this will cause it to put out the tongue to get the sugar. The little operation, however, is best done by the doctor.

The temperature of babies and that of some of the older children must be taken in the rectum, the thermometer being oiled before it is inserted, and carefully watched lest any sudden movement of the child should break the thermometer, the mercury and fine glass entering the rectum. The baby should be placed on its left side on the nurse's lap.

Pulse and Respiration.—*The pulse* can only be taken correctly when the baby is asleep. The pulse is very easily affected, the least thing sending it up, together with the temperature, and increasing the respirations. The pulse at birth is about 140 beats per minute, and gradually it decreases with increase in age, as follows:

First month the pulse is about	120
First to second year it is about	110
Second to fifth " " "	100
Fifth to eighth " " "	90
Respirations at birth are from	40–50
First month, about	40
First to third year, about	35
Third to fifth " "	25

Signification of the Baby's Cry.—Until the child begins to talk its *cry* is its only language. If the cry is long and persistent it is usually due to hunger, or the child has earache, in which case the hand is drawn up to the ear. If there is pain in the head, the hand is also drawn up to the head and the cry is sharp and piercing, the face flushed, and there is restlessness. With pain in the abdomen the cry is long, sharp, and loud, and gradually ceases as the pain subsides. The knees are drawn up to the abdomen. If the pain is in the chest, the cry is sharp and suppressed, with the cough which accompanies it; the nostrils dilate and contract.

Diseases of Childhood.—Any of the diseases which attack grown persons may also attack children.

Typhoid fever is apt to run a milder course in children than in adults; the nursing, however, is just the same. A strict watch must be kept of the temperature for hemorrhage, which is indicated by a sudden drop of temperature and a weak, rapid pulse. The bowel-movements after the hemorrhage are dark red, but if the feces are not passed for some time after, they resemble tar. The child must be kept perfectly quiet (not allowed to move), so that the blood will coagulate in the blood-vessels and prevent further hemorrhage. Cold water or crushed ice may be given in small quantities; only the amount of water or ice it is intended the child to have should be put into the tumbler; if there is more and the tumbler is taken away, the child will cry for it. Baths and packs are given in the usual manner. Ice can be applied to the head by crushing the ice and making an ice poultice which can be stitched upon a night-cap. This will prevent the poultice falling from side to side. In the absence of rubber there may be used flannel or towels, which are fastened to the pillow, so that the weight of the poultice will not be on the child's head.

With children ulceration of the bowels is less likely than with adults, consequently the dangers of hemorrhage and perforation are less. The rash may be absent, but the brain-symptoms are marked and generally the temperature rises suddenly.

Meningitis is inflammation of the membranes of the brain.

Symptoms.—The child is restless, listless, drowsy, and fretful; loses flesh; grinds the teeth when asleep, and the pain in the head causes him to wake up with a scream; he cannot tolerate the light or the slightest noise; the pulse is increased and the temperature is raised. These symptoms deepen; the drowsiness increases, followed by delirium. The pupils of the eyes may be dilated or evenly contracted, or the child may squint; there may be convulsions. Finally there is complete coma.

The treatment of meningitis lies in keeping the child perfectly quiet in a darkened room and in applying cold constantly to the head. The bowels must be kept open and the child be fed by the rectum if necessary. The child must be kept perfectly clean. As the stupor sets in the urine and the excreta will involuntarily be passed.

Mumps is an inflammation of one or both of the parotid glands, situated beneath the ears. There are feverishness, headache, restlessness, chill, and vomiting, and then the swelling begins. The disease is both contagious and infectious, and for this reason an affected child must be isolated from other children.

Treatment.—The child must be kept warm and hot fomentations applied to relieve the pain, or the neck and face may be covered with absorbent cotton or flannel. Oil rubbed into the skin will relieve the tight feeling. After four or five days the swelling begins to subside and the pain is relieved. Soft food should be given.

Incontinence of urine needs the care of a physician, as it may be due to some trouble with the bladder, or the urine may contain too much acid. Children who have this trouble are very often whipped and scolded by both parents and nurses: this is a great mistake, and is wrong to a child, unless the nurse is sure that the incontinence is due to carelessness.

Chorea, or *St. Vitus' dance*, is a nervous disease of childhood, and is characterized by the involuntary twitching of one or more or of all the muscles of the body, that ceases when the child is asleep. In mild cases recovery takes place in from four to six weeks;

but in severe cases, when the whole body is involved, the child may die, either through inability to take nourishment or to sleep, or from heart complications. The affected child must be isolated from other children or they will imitate its affliction. Good nourishing food must be given, and the child be kept free from all excitement. Rheumatism being one of the complications of chorea, any stiffness of the joints must be reported. The child must be treated very kindly and gently spoken to; a sharp word has been known to throw a child into convulsions. Should convulsions set in without any apparent cause, such as fear, worry, or excitement, they may be the beginning of some complication. In severe cases of chorea the patients are kept in bed. There is always the liability to recurrent attacks, and women who have had an attack in childhood may have a recurrence of the disease during pregnancy.

Surgical Diseases of Children.—The surgical diseases of children are similar to those of adults, and demand the same treatment. After any trouble with the bowels, such as peritonitis or appendicitis, the child should wear a flannel abdominal binder, because sudden changes in the temperature are liable to affect the bowels; the binder will keep the bowels warm and guard against recurrent attacks; the bowels must also be kept open. Pain in the knees or the hips must be reported; it may denote hip disease.

Hip-joint disease (Coxalgia) is caused by a blow or a fall, or it may originate from tubercular inflammation of the structure of the hip-joint or scrofula, the patient inheriting either of these diseases. The germ lodges in the end of the femur or thigh-bone. If the disease is of tubercular origin, tubercular meningitis may set in. The child must be confined to bed; he must not sit up. Every little while he will scream in his sleep on account of pain caused by a muscular spasm which brings the inflamed surfaces of the joint together. Any knocking against or jarring of the bed causes great pain.

Children must have plenty of fresh air and sunlight; they cannot live healthfully without; also good nourishing food, of which milk should be the chief.

Nurse's Management of Children.—A child who has been used to home-training and to having every whim satisfied does not take kindly to the nurse, and often will not allow her to do anything for him. Therefore, it is generally well for the child to see the nurse in the room for a little while, the mother acting under her directions, and after he has become accustomed to the nurse's presence the way will be much easier. If the first thing the nurse has to do is to dress a painful part, she should not go up to the child and begin the dressing, but she should talk to him about his playthings; then, after a while, with a little tact, she can look at the part, touching it very gently; if this causes no pain and the child thinks the nurse is not going to hurt him, he will let her do the dressing, the nurse all the time keeping up the conversation to attract his attention to other things. With children the nurse should be firm and at the same time be gentle; she should let *yes* mean yes, and *no* mean no. If the nurse has difficulty with a child at first, he will see that she is firm and that her orders are to be carried out. On no account must the child be deceived. A child will often take the most disagreeable medicine from a nurse whom he loves and by whom he has never been deceived, because she says that it is easy to take, the patient having a child-like faith in her, when no power nor persuasion could make him take it from a nurse who was unkind or who has deceived him.

Children live in the present, the past is soon forgotten. We should encourage their little efforts to be good, provide them amusement, and sympathize with them in their little troubles. A little boy (about four years old) went into his father's study holding up a finger which had been pinched by the door, and, with a look of pain on his face, said, "Look, papa, how I have hurt my finger." His father, who was busy writing and did not want to be interrupted, said rather impatiently, "I can't help it, dear." The little fellow's eyes filled with tears, and as he turned to leave the room he said in a low tone, "You might have said 'Oh!'" Children live in a world of their own; their little trials are just as great to them as are our greater ones to us, for "there is no misery like the misery of childhood;" a little sympathy for a pinched finger or a stubbed toe, a bumped head, a smashed doll or toy, is always a great comfort to them.

In conclusion the writer begs to remind the nurse of what has been said about sympathy and kindness to her patients. They are so dependent upon her for comfort and sympathy that a gentle word or a pleasant smile, kind attention to their needs, and regard for their feelings, though little things, give great consolation. Sympathy and comfort are especially necessary before an operation, of which all patients naturally have a dread. None can realize what the feelings of the patients must be as they go bravely (outwardly) to the etherizing room, or what a comfort it must be to them to know that some one who fully sympathizes is with them. It is here that they want their own to be with them, and it is here by kindness and sympathy that the nurse can, in a measure, take the place of their own. "The small kindnesses," says M. A. Kelty, "the small courtesies, the small considerations habitually practised, the sympathy in our every-day work, give a greater charm to the character than the display of great talents and accomplishments;" and in *Felix Holt*, George Eliot says: "A supreme love, a motive that gives a sublime rhythm to a woman's life, and exalts habit into partnership with the soul's highest needs, is not to be had where and how she wills: to know that high initiation, she must often tread where it is hard to tread and feel the chill air and watch through darkness. It is not true that love makes all things easy; it makes us choose what is difficult."

PHYSIOLOGY AND DESCRIPTIVE ANATOMY.

I. Physiology.

Blood-circulation.—The circulation of the blood through all the parts of the body, taking with it the material for nutrition and gathering up the waste material, is caused by the action of the heart, the arteries, the capillaries, and the veins. The *arteries* carry the blood from the heart, and contain pure, rich red blood. The *aorta*, the largest artery leading from the heart, branches off into smaller arteries, which finally become very small, and which are termed *capillaries*. These vessels are

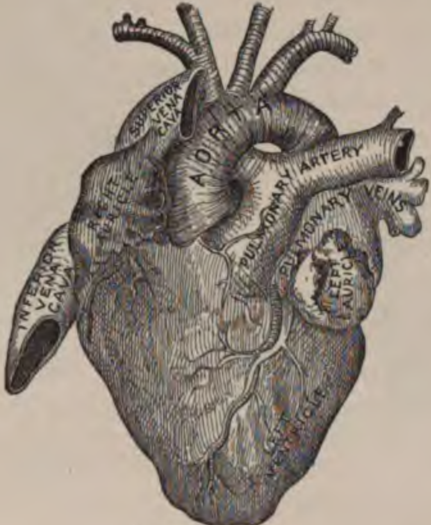


Fig. 91.—The heart.

very tiny, yet they allow a constant stream of blood to pass through them; they are very numerous and near the surface of the body, so that in pricking the finger we get an oozing of blood which comes from the capillaries. The capillaries connect with the *veins*, which at first are very small, but they grow larger and larger until they merge into two large veins, the *vena cava superior* and the *vena cava inferior*, which bring the blood back to the heart, and which are on the right side of the heart.

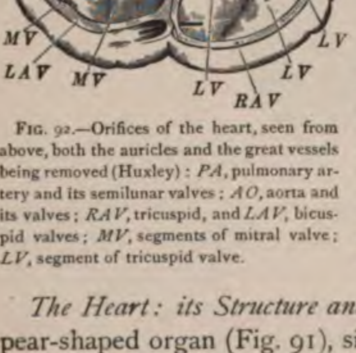


FIG. 92.—Orifices of the heart, seen from above, both the auricles and the great vessels being removed (Huxley): *PA*, pulmonary artery and its semilunar valves; *AO*, aorta and its valves; *RAV*, tricuspid, and *LAV*, bicuspid valves; *MV*, segments of mitral valve; *LV*, segment of tricuspid valve.

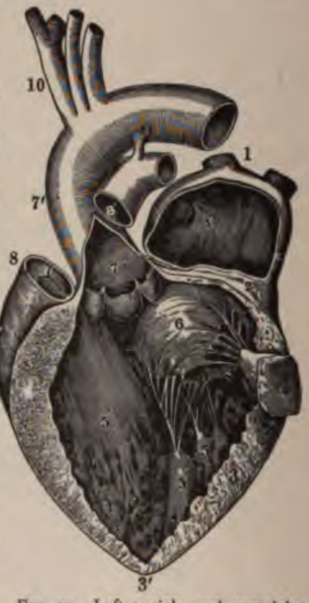


FIG. 93.—Left auricle and ventricle, opened and part of their walls removed to show their cavities (Allen Thomson): 1, right pulmonary vein cut short; 1', cavity of left auricle; 3, 3', thick wall of left ventricle; 4, portion of the same with papillary muscle attached; 5, the other papillary muscles; 6, 6', the segments of the mitral valve; 7 in aorta is placed over the semilunar valves; 8, pulmonary artery; 10, aorta and its branches.

The Heart: its Structure and Valves.—The heart is a pear-shaped organ (Fig. 91), situated in the front of the chest, with its apex, or the small end, pointing down and to the left. This important muscular organ has two distinct parts, each of which is again divided into two parts connected with each other. Each of these four parts, or chambers, holds about 2 ounces; the two upper chambers are called "auricles," the two lower "ventricles" (Fig. 93). There are openings between the right and left auricles and ventricles guarded by valves; the one between the right auricle and ventricle is the *tricuspid* valve; that between the left auricle and ventricle is the *mitral* valve (Fig. 92). There are two other valves, one in the right ventricle, where the pulmonary artery begins, the other in the left ventricle, where the aorta begins. These valves are called "semilunar valves" (Fig. 92), and the object of these valves is to prevent the blood flowing back when the heart dilates.

Mechanism and Course of the Circulation.—To return to the two great veins. The *venous* blood, which is loaded with impurities and is dark colored, reaches the two great veins, the vena cava superior and the vena cava inferior, which join together and empty into the right auricle; this chamber contracts and forces the blood down through the tricuspid valve into the right ventricle, which contracts and sends the blood through the right semilunar valve and *pulmonary artery* into the lungs. In the lungs the blood throws off its impurities, takes up a new supply of oxygen, and becomes pure, bright-red *arterial* blood. This change is due to the *respiration.* This pure blood returns to the heart by the *pulmonary veins*, which empty into the left auricle; this contracts and forces the blood down through the mitral valve into the left ventricle, which also contracts, and sends the blood through the left semilunar valve into the aorta, which is the largest artery in the body. The first branch of the aorta is the coronary artery, which supplies the heart itself. The branches of the aorta are many, and they grow smaller and smaller as the distance from the heart increases, carrying the pure blood to all parts of the body; the last of these branches are the capillaries, which are so small that they are invisible to the naked eye. The blood, when passing through the capillaries, loses its bright-red color and becomes dark, because the different tissues take from the blood what is necessary for their support, and give in return the waste, worn-out material; the oxygen disappears from the blood to a great extent, and the blood on reaching the veins becomes dark blue, being full of impurities. The blood then returns to the heart and thence to the lungs, where its impurities are thrown off with the breath. The blood takes up a new supply of oxygen in the lungs, and repeats its journey through the body.

There is one instance where the arteries carry venous blood, and the veins carry arterial blood; it occurs in the *pulmonary circulation*, generally called the "lesser" circulation. In this circulation the venous blood enters the right auricle and ventricle, and passes through the semilunar valves into the *pulmonary artery*, thence to the lungs, where, as we have seen, it is purified and made into bright-red arterial blood, and returns to the heart by the pulmonary *vein.*

There is another circulation, called the "portal" circulation, in which four large veins—the inferior and superior mesenteric, splenic, and gastric—form one large trunk called the "vena portæ." This portal vein collects the blood from the stomach, the pancreas, the spleen, and the intestines, and carries it to the liver, where it mixes with the blood that is supplied to the liver. The blood then passes from the capillaries of the liver into small veins, the *hepatic veins*, which carry it to the vena cava inferior.

The *greater* or *systematic* circulation begins at the left ventricle, thence through the aorta, and is distributed to all parts of the body, going through capillaries and veins, and then returning to the right auricle.

Respiration.—The *air* we breathe is mainly composed of two gases, oxygen and nitrogen, there being more nitrogen than oxygen. The oxygen is absolutely necessary to support life; still, alone it would not support life, because it is too stimulating; hence there can be danger from too much as from too little oxygen. The nitrogen serves to dilute the oxygen. There is also a small quantity of carbonic-acid gas, which is very poisonous, and a certain amount of watery vapor, which, when exhaled, is invisible, except in cold weather, when it is seen to issue from the mouth or the nostrils in the form of a white cloud.

Mechanism of Respiration.—Each time we breathe the air passes into the lungs through the nose, mouth, larynx, and trachea, thence to the bronchial tubes and air-cells of the lungs. The muscles of the chest expand, the diaphragm contracts, allowing the lungs plenty of room to expand, the ribs are lifted, the lungs expand, the air-cells open, and a fresh supply of oxygen is inhaled. This action is called "inspiration." The second movement is called "expiration," in which the diaphragm relaxes and rises in the form of a dome, the ribs descend, the chest contracts, the lungs, which are elastic, shrink, and the impure air is driven out. We breathe in oxygen and give out carbonic-acid gas, which must not be inhaled again, and to which there is a faint odor, but unnoticeable except when present in large quantity.

Upon entering a poorly-ventilated hall or a room in which there are many people, one will at once notice the bad air. It is due to the carbonic-acid gas expired by each inmate, there being not enough oxygen to purify the air. Lighted gas-jets also consume the oxygen.

If there is too little oxygen to purify the blood, the venous blood is distributed to the heart and thence to the body, and there is a feeling of faintness and suffocation.

Our bodies must be supplied with fresh air, food, and drink; we cannot live without them. One knows the need of food by the cravings of the stomach, the need of water by the dryness of the mouth and throat, the need of pure air by the feeling of suffocation.

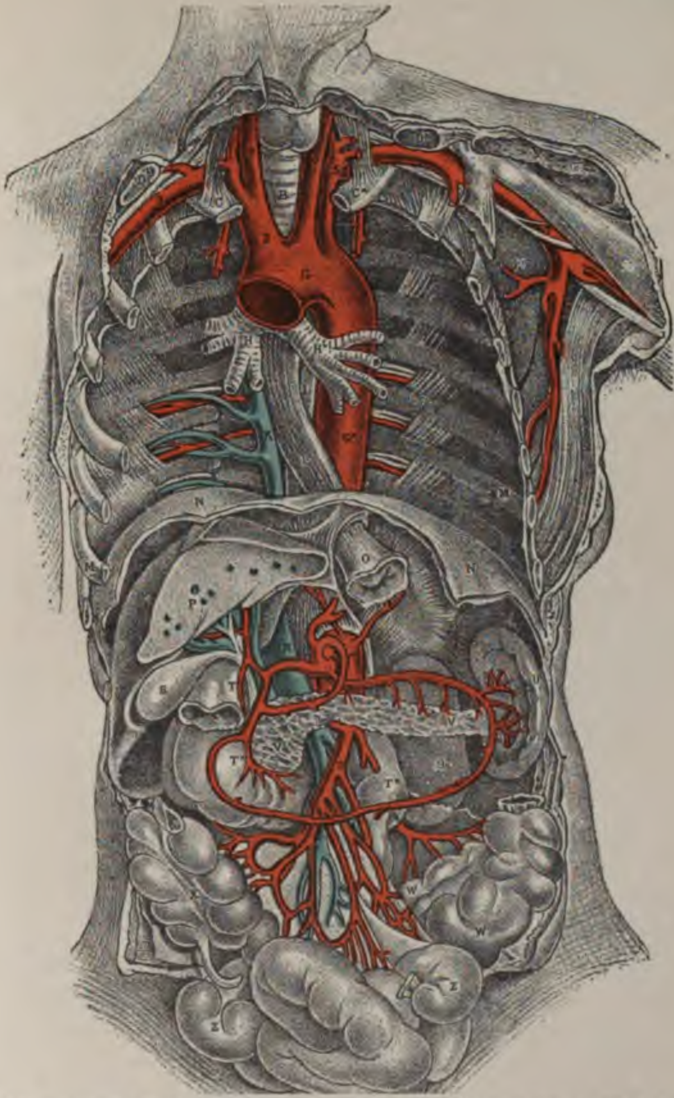
Animals, like human beings, take in oxygen and give out carbonic acid. *Plants* take in carbonic-acid gas and give off oxygen in the day-time; in the night they take in oxygen and give off carbonic-acid gas. It is for this reason that plants should be removed from a room at night.

Besides the lungs, the skin and the kidneys assist in removing impurities from the body.

The Digestion.—The *organs of digestion* are the salivary glands, the stomach, the liver, the pancreas, and the intestines. These so change the food we eat that it can be taken into the blood and nourish the body.

The alimentary canal (Fig. 94) is about 30 feet long; it begins with the mouth and ends with the rectum. It is in this canal that the process of digestion is carried on. The first part, which extends from the mouth to the stomach, is called the "esophagus" (gullet), and conducts the food to the stomach. The stomach is the most

ANATOMY. PLATE 5.



ANATOMY OF THE THORAX AND ABDOMEN: A, the thyroid; B, the trachea; C, C^1, the first ribs; D, D^1, the clavicle (cut); G, arch of the aorta; G^1, descending aorta; H, H^1, right and left bronchi; I, esophagus; K, vena azygos; L, thoracic duct; M, M^1, seventh ribs; N, diaphragm in section; O, cardiac orifice of the stomach; P, liver in section, showing orifices of hepatic veins; R, inferior vena cava; S, gall-bladder; T, pyloric end of stomach, joining T^1, the duodenum; U, the spleen; V, the pancreas; W, the sigmoid flexure of colon; X, caput coli (cecum); Z, coils of the small intestine; 2, the innominate artery; 3, right subclavian artery; 4, common carotid artery; 5, left subclavian artery; 6, left common carotid artery; 7, left axillary artery; 8, superior mesenteric artery; 9, left kidney (Maclise).

expanded part of the canal; its left end is enlarged, and because it is on the heart side of the body is called the "cardiac dilatation." The right end of the stomach narrows and connects with the small intestine. The small intestine is a continuation of the canal, is about 20 feet long, and lies in convolutions in the abdomen; it ends in the large intestine, which is about 5 feet long, and which runs up the right side of the body (ascending colon), crosses over under the liver and stomach (transverse colon), descending the left side (descending colon), and ends in the sigmoid flexure and rectum (Fig. 94).

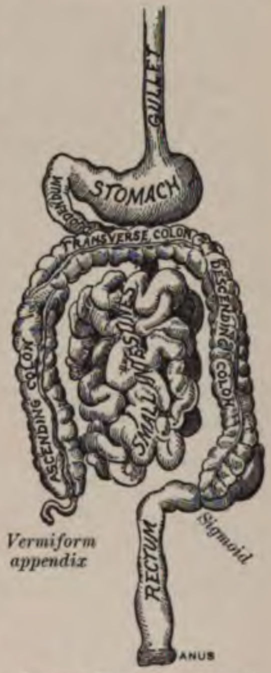


FIG. 94.—The alimentary canal.

Mastication and Deglutition.—The food when taken into the mouth is cut and ground by the teeth, reduced to a fine pulp, and mixed with the saliva, which changes the starch that the food contains into sugar by its active principle, ptyalin. When sufficiently masticated the food is carried backward to the opening which leads into the pharynx, and is thrust into the latter, the soft palate being lifted and its pillars brought together, while the backward movement of the tongue causes the epiglottis to incline backward and downward over the glottis, thus forming a lid over which the food can travel without dropping into the air-passages. The epiglottis prevents the food from passing into the trachea, and the soft palate keeps it from passing into the nasal cavities.

Stomach and Intestinal Digestion.—When the food passes into the stomach it is rolled about and thoroughly mixed with the *gastric juice* until it is reduced to the consistency of pea-soup, called "chyme." It then passes through the pylorus (a narrow opening at the right end of the stomach), and the duodenum, the first part of the small intestine adjoining the stomach. A large quantity of the fluid (chyme) is absorbed through the walls of the stomach and joins the blood-circulation. When the food or chyme passes into the duodenum it is mixed with the *pancreatic juice* and the *bile*, and is converted into *chyle*, a milky fluid formed by the digestion in the intestines of fatty particles of food. After passing through the small intestines the food gradually loses its nourishing properties, and finally enters the large intestine, where it acquires its characteristic fecal odor and color.

Secretions.—Some of the secretions of the body are: saliva, perspiration, sebaceous matter, tears, gastric juice, pancreatic juice, intestinal juice, milk, bile, and mucus.

In the *mouth* is the saliva $\left\{\begin{matrix}\text{Water}\\ \text{Ptyalin}\end{matrix}\right\}$, which changes starch into grape-sugar.

In the *stomach* is the gastric juice—water, pepsin, hydrochloric acid—which digests albuminoids.

In the *intestines* are the juices of the intestines—bile, pancreatic juice, water—which digest fats, starch, and albuminoids.

Parotid Glands.—The parotid glands are situated one in front of each ear. They are salivary glands.

Excretions.—The excretions are eliminated from the body by the skin, the lungs, the kidneys, and the bowels.

Urinary Organs.—The urinary organs are the kidneys, the ureters, the bladder, and the urethra (see page 338). The kidneys purify the blood by removing from it waste and worn-out material. They also regulate the amount of water to be removed from the body, and the amount to be retained in the body for resorption.

The Urine.—The urine is one of the excretions of the body, and contains waste and worn-out material held in solution, or "salts," as they are called, among which is urea, uric acid, urates, chlorids, and earthy phosphates.

The *normal quantity* of urine passed in the twenty-four hours is from 30 to 50 ounces. The *color* is a light amber, the *reaction* acid, and the *specific gravity* (by which is meant the weight of the urine) averages from 1018 to 1024, or may be as high as 1030 without there being any disease. There is a characteristic aromatic *odor*.

The *amount* of urine is varied at different times, more being passed during the day than the night. Food and drink increase the quantity. After profuse perspiration the amount is decreased; while, on the contrary, cold decreases the activity of the skin, and consequently the flow of urine is increased. Some diseases are characterized by an increase or a decrease in the amount passed; as, for instance, one of the first symptoms of diabetes mellitus is the increased amount of urine passed daily, which amount may be as high as 80 or 100 ounces, of a specific gravity ranging from 1020 to 1045, which may indicate

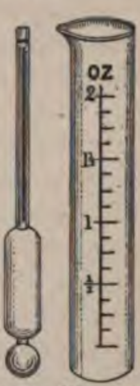


FIG. 95.—Urinometer.

an abnormal amount of sugar in the urine, and the color may be a clear light yellow, without any sediment.

When there is an excess of sugar or urea, or of any of the other substances in the urine, it does not follow that the kidneys are diseased; they may be perfectly healthy, and the change be due to some nutritive or other disturbance; but when we find albumin in the urine, the kidneys are generally diseased.

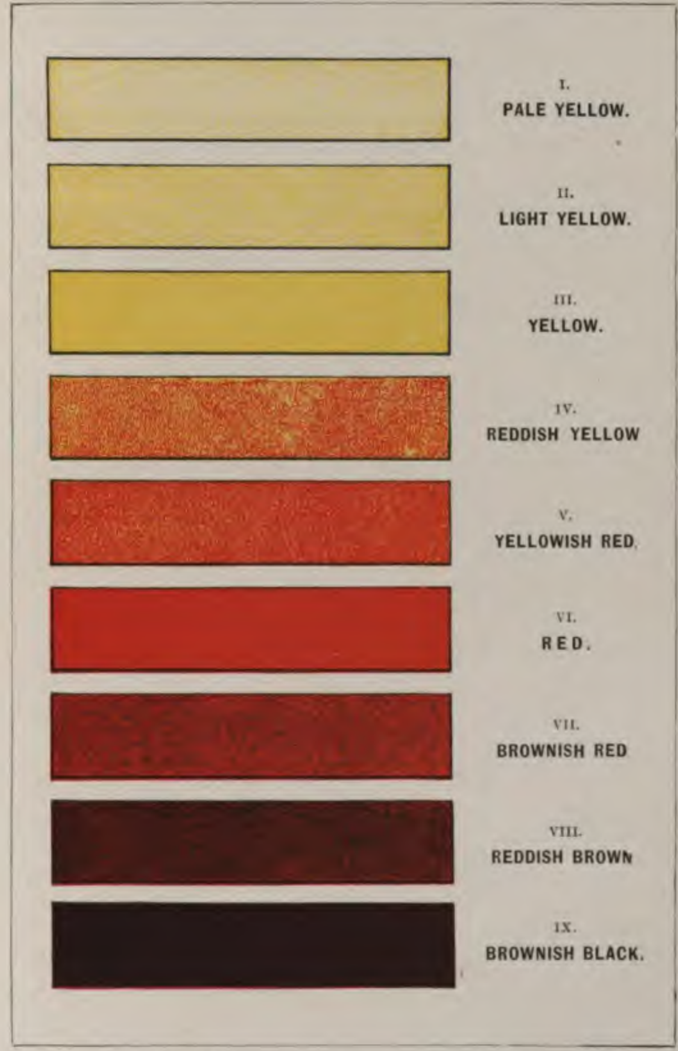
In acute diseases the quantity of urine may be diminished and its color and specific gravity be high. When convalescence sets in the amount increases and the specific gravity may be found below the normal.

The *odor* of the urine is affected by taking certain foods and medicines.

The *color* of the urine varies from a light amber to a dark red (Pl. 6). In nervous diseases the urine is very often pale, like water. In fever cases it is a high red color, and is generally thick and loaded with sediment, because, as the amount of food taken into the body is much less, the wasting process is more active; hence the amount of solids in the urine is increased. Medicines influence the color. Bile may give to it a dark-brown or a greenish color, as will also carbolic acid; iodoform will give to it a dark smoky color.

The *reaction* for the twenty-four-hour amount is acid. After meals it may be neutral or alkaline. The reaction is taken with blue litmus-paper, which, if the urine is acid, will be turned red. If the urine is alkaline, it will turn red litmus-paper blue, and if it is neutral (neither acid nor alkaline), it will have no effect upon either red or blue litmus-paper.

The *specific gravity* of urine is taken with the urinometer (Fig. 95). When taking the specific gravity the



Scale of Urinary Colors, according to Vogel (Wolff).

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urine is poured into the tall glass and in the middle is dropped the urinometer, the number of degrees being read from off the scale at the level at which it rests.

Tests of Urine.—To test for albumin a test-tube is half filled with urine and heat applied until boiling occurs. If albumin is present, the urine appears cloudy, and this cloudiness does not disappear on the addition of a few drops of nitric or acetic acid. Another ready way, if nitric acid is at hand, is to pour some of the acid into a small glass, incline the glass, and pour down the side of it an equal amount of the clear urine, which will spread over the acid; if albumin is present, there will be a sharp white ring between the urine and the nitric acid. Very often we get this white ring when the mixed urates are present, and it might be mistaken for albumin; but if urates are present and not albumin, the white ring, or "zone," as it is called, will not appear where the urine and nitric acid meet, but higher up, and later will spread into the urine, and if it is heated will disappear. When normal urine is poured on nitric acid a brown ring appears between the urine and the acid, due to the action of the acid on the coloring matters. Hence, when there is an abundance of coloring matter the albumin precipitates may be similarly colored.

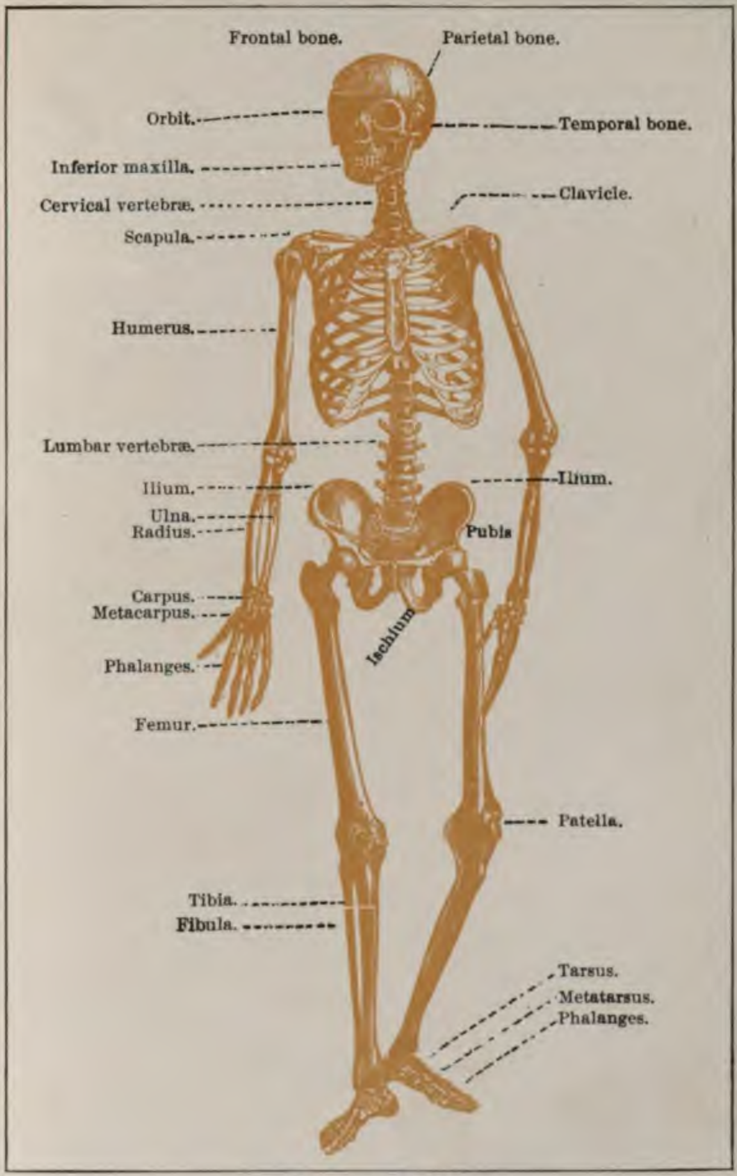
A pretty test for sugar is to add to the urine an equal amount of sodii hydrate, which will make the urine alkaline, then add drop by drop a solution of sulphate of copper; if sugar is present, the mixture turns a dark navy-blue color. If this mixture is boiled, there will result a reddish-yellow precipitate; this is Trommer's test. Another test is to take urine and liquor potassæ equal parts, and add a little bismuth subnitrate; this solution when shaken and boiled, if sugar is present, will turn perfectly black.

2. DESCRIPTIVE ANATOMY.

The anatomy of the body will not minutely be considered, but merely a brief description of the skin, the muscles, and the bones, and the situation of the different organs of the body will be given.

1. **Skin.**—The skin is the covering (integument) of the body that protects the parts beneath it, and that regulates the heat of, and gives off waste material from, the body. There are two layers of skin—an outer layer, the *epidermis*, and an inner layer, the *cutis* (derma) or true skin. The latter is supplied with capillaries and nerves, and bleeds freely if cut or pricked. The epidermis does not bleed. Just below the cutis is a layer containing fat and the larger arteries of the body. On some parts of the body the skin is thicker than on others, as the palms of the hands and soles of the feet. At the junction of the different cavities of the body—the nose, mouth, rectum, etc., the skin gradually merges into the lining membrane of these cavities, known as mucous membrane. This consists of an outer epithelial layer and an inner layer of connective tissue containing blood-vessels, nerves, etc. The black color of the skin in the negro and the tawny color among some of the white races are due to the presence of pigment in the cells of the cuticle. Developed from the skin are the hair and the nails.

2. **Bones of the Body.**—The bones are the framework of the body; they afford protection to the important organs, and are covered with a fibrous membrane called the "periosteum." There are in the body about 206 bones of different shapes and lengths. They are divided



The Human Male Skeleton.

into three groups—bones of the head, of the trunk, and of the extremities (Pl. 7). The *femur* or thigh-bone is the largest, longest, and strongest bone in the body, and the *stapes* (one of the little bones of the ear) is the smallest bone in the body.

The ends of bones, when jointed movably with others, are covered with cartilage, having within the joint free surfaces of great smoothness, which surfaces are lubricated by the synovial fluid secreted from the synovial membrane which lines the joints. The bones are further held together by fibrous tissue in the form of ligaments.

Bones of the Skull.—The skull is a box of bone containing the brain, which is a soft, pulpy substance and is the chief organ of the nervous system. The skull is composed of two plates of bone from which the brain is separated a little distance.

The thickest part of the skull is at the back, where it is half an inch thick, and the thinnest part is at the temples. Just above the eyes on the forehead the two plates of bone are separated half an inch or more, so that should a person be kicked by a horse or otherwise injured, the outer table may be indented to a considerable extent, and it may even affect the inner plate, without injuring the brain.

Bones of the Trunk: Thorax.—The thorax, or chest, is bounded by the ribs, the breast-bone, and the backbone. The chest contains the heart and the lungs, and also the large blood-vessels.

There are twenty-four ribs (twelve on each side), of which the seven upper ones are called "true ribs;" the five lower are "false ribs." All the ribs are attached to the spinal column by ligaments, which hold them in position. The seven true ribs are connected with the sternum (breast-bone) by means of cartilages. The 8th, 9th, and 10th ribs are each attached to the lower border of the rib above it. The 11th and 12th ribs are called "floating ribs," having only one attachment, that of the spinal column. The *sternum* is the breast-bone. The *clavicle*, or collar-bone, is a long bone which articulates with the sternum and scapula. The clavicle connects the upper extremity, which is divided into shoulder, arm, forearm, and hand, with the body. The *scapula*, or shoulder-blade, is a large, flat, triangular bone held in place by the clavicle and muscles.

The *spinal column*, or the back-bone, extends from the base of the skull to the lower extremity of the back, and is composed of twenty-six bones called "vertebræ," piled one upon the other, making a strong pillar for the support of the head and trunk. Between each of these small bones is a layer of cartilage of an elastic character which allows the body to bend in many directions.

The seven *cervical* (or neck) vertebræ extend from the base of the skull to the shoulders, the twelve *dorsal* (or back) vertebræ extend from the shoulders to the lower ribs. Between each articulating pair of vertebræ is an opening on each side for the passage of nerves throughout the entire length of the column—the *spinal cord*. The five *lumbar* (loin) vertebræ extend from below the ribs to the pelvis, the bones of the *sacrum* and the *coccyx* forming the extremity of the spine.

The *pelvis* is formed by the sacrum, the coccyx, and the two ossa innominata. The female pelvis contains the *womb*, *ovaries*, *Fallopian tubes*, *bladder*, and *rectum* (see pp. 314, 315).

Bones of the Extremities.—The *humerus* is the largest bone of the arm, and articulates with a shallow joint-surface on the shoulder-blade. Under each arm is the *axilla*, containing a great bunch of nerves and blood-vessels and numerous glands. The *forearm* is composed of two bones—the radius and ulna—the radius being on the outer or thumb side of the forearm, where we feel the pulse. The elbow-joint is called a "hinge-joint," the movements being limited to flexion to an acute angle and to extension in a straight line. Below the forearm is the wrist, and next the hand.

The *lower extremity* consists of the thighs, the legs, and the feet.

The *femur* or the thigh-bone, has a round head, and fits into a deep cup-shaped socket in the hip-bone.

The *patella*, or knee-cap, is a small flat bone situated in front of the knee-joint. The two bones of the leg below the knee are the *tibia* and *fibula*. The tibia is the stronger of the two, and is on the inner side of the leg. It is joined to the femur, and the fibula, which is long and slender, is joined to the tibia, and both articulate with the ankle-bone (astragalus).

3. **Muscles of the Body.**—The muscles are the fleshy portions of the body, and by their contraction and relaxation are organs of motion. They are divided into two classes—those subject to the will, or *voluntary* muscles, and those not subject to the will, or *involuntary* muscles, of which the muscles of the heart and of the intestines are examples. The muscles differ in length and form, being long, short, broad, round, and flat. The smallest muscle in the body is the *stapedius* (one of the muscles in the ear), which is only $\frac{1}{8}$ of an inch in length, and the longest muscle in the body is the *sartorius*, which is over 18 inches in length, reaching from the hip to below the knee.

Running up from the sternum and clavicle to the mastoid process is the *sterno-cleido-mastoid* muscle; beneath this is a large artery which supplies blood to the face and head, and the *jugular* vein, which, if opened, may cause instant death.

The *diaphragm* is a sheet of muscle which separates the cavity of the chest from the abdomen.

Tendons.—Tendons are white, glistening fibrous cords which attach certain muscles to bone. The largest tendon in the body is the tendo Achillis inserted in the heel-bone.

Fascia.—The fascia is a fibrous membrane covering the muscles. It is very tough, does not stretch, neither can pus penetrate it.

4. Heart, Blood-vessels, and Lymphatics. — *The heart* is a large muscular organ situated in the front part of the left side of the chest, pointing toward the left, and enclosed in a membraneous sac called the "pericardium." The movements of the heart are involuntary—that is, are not under the control of the will. The walls of the heart are constantly expanding (diastole) to take in a fresh supply of blood, and contracting (systole) to drive out the blood. Following each systole and diastole there is a short pause, amounting to a fractional part of a second, which is all the rest that the heart gets. It is for the purpose of increasing this period of rest•that patients with heart disease are frequently kept quietly in bed (see *Blood-circulation*, p. 315).

Arteries.—The *aorta*, which is the largest artery in the body, springs from the heart. When it leaves the left ventricle it forms an arch, then gives off branches which divide and subdivide until they become very small vessels, called "capillaries." The *carotid* arteries supply the head and the neck. The *subclavian* arteries are beneath the clavicles. The *axillary* is a continuation of the subclavian, and passes through the armpit and down the inner side of the arm as the *brachial* artery. This artery divides at the elbow into the ulnar and radial arteries. The *ulnar* is on the inner side of the forearm, and the *radial* is on the outer or thumb side, and both supply blood to the hand and fingers. The aorta descends through the thorax into the abdomen, and is called respectively the "thoracic" and the "abdominal" aorta.

The *internal iliac* artery supplies the walls and organs of the pelvis. The *external iliac* runs along the brim of the pelvis down the inner side of the thigh, where it takes the name of the *femoral* artery, whose pulsations can be felt in the groin. The femoral passes into the back of the thigh and knee, and is called the "popliteal artery." The leg and foot are supplied by the *tibial* and *peroneal* arteries.

The *lymphatics* are the vessels which take up the lymph from all parts of the body, with the exception of the intestines, and return it into the venous system.

5. Brain, Cord, Nerves, and Organs of the Senses.—*The brain* is composed of gray matter at the surface and white matter in deeper portions. It is divided into the big brain, or the *cerebrum*, and the little brain, or the *cerebellum*, and is enveloped from within outward by three membranes, the pia mater, the arachnoid, and the dura mater. The brain gives off twelve pairs of nerves which supply the head and face (the organs of special sense), the heart, the lungs, and the stomach.

Spinal Cord.—The *medulla oblongata* is the enlarged upper portion of the spinal cord within the skull. It resembles the cord in being composed of both white and gray matter. It is the headquarters of the important nerve lines which go to the heart, lungs, stomach, and other prominent organs. The spinal *cord* is composed of gray and white matter, the gray matter being inside the cord. It is covered with membranes similar to those of the brain, the pia mater, the arachnoid, and the dura mater. It is also divided into two halves, and gives off thirty-one pairs of nerves, which supply the trunk, the extremities, and portions of the head and neck (see p. 328). At the beginning of the spinal cord the nerve-fibres (see p. 283) cross from right to left, so that the nerves at the right side of the brain supply the left side of the body and *vice versâ*. Thus, when one side of the brain is injured it is the opposite side of the body which is affected. This crossing is called the "*decussation*" of the nerve-fibres.

The nervous system consists of the brain, the spinal cord, and the nerves. Through it all the functions of the body, both mental and physical, are performed. Thought, sensation, and motion are all under the control of the brain, which is the seat of government.

The brain, which is the chief organ of the nervous system, may be regarded as a central telegraph office; the gray matter along the spinal cord is the district offices, and the nerves are the telegraph wires.

The nerves are composed of silvery-white fibres, and furnish both sensation and motion. The *sensory* (sensation) fibres begin in the skin and end in the brain, and carry messages to the brain. The *motor* (motion) fibres begin in the brain and end in the skin, and carry messages from the brain. When we want to lift up anything or to move a hand, an arm, or a foot, the brain sends a message over the nervous system to the muscle of whatever part we want to move. The muscles contract and the part is moved. These are the nerves of motion, or the motor nerves. Again, when we are being burnt with a hot iron or injured in any way, however slight, the nerves of sensation reflect the message to the brain; then we feel the pain, and the brain instantly sends down the message over the motor fibres to move the part away.

The *spinal cord* gives off thirty-one pairs of nerves, each nerve having two roots—the one, called the motor root, carrying motor impulses from the cord; the other, the sensory root, carrying sensory impulses to the cord. The spinal cord, in addition to carrying impulses to and from the brain, presides over *reflex action*, which is an involuntary action produced by irritating or stimulating a peripheral sensory nerve. Thus, if the patella tendon, the tendon in front of the knee, be tapped quickly, the stimulus thus produced travels up a sensory nerve to the spinal cord, where it is reflected to a motor nerve, and in consequence the leg is moved. The path of transference of the stimulus is known as the reflex arc, and the movement of the leg is a reflex action, known usually as the patella-tendon reflex or knee-jerk. Winking, coughing, and sneezing to get rid of some irritating substance are examples of reflex action. The production of an increased flow of saliva at the sight of certain articles of food is also an example of reflex action.

The *vasomotor nerves* are the nerves controlling the blood-vessels—producing contraction and dilatation.

Eyes.—The eye, strictly speaking, consists only of the eyeball or eye-globe; but connected with the eyeball externally are muscles, nerves, blood-vessels, as well as other parts specially designed for its protection (see p.

123). The cavities containing the eyeballs are called "orbits," which are about 1½ inches deep. At the bottom are small holes through which enter the optic nerves.

Nose.—The nose is composed of bone and cartilage.

Ear.—The ear is divided into three parts—the external ear or auricle, the middle ear, and the internal ear (Fig. 96).

The auricle (*pinna*) is composed of cartilage covered with skin (*A*), and has a tube about an inch long called the "auditory canal" (*G*). The cavity of the middle ear, or the *tympanum*, is separated from the external canal by the drum-membrane (*T*). This drum-membrane is about one-eighth of an inch in diameter and $\frac{1}{250}$ of an inch in thickness, and has three layers—one of skin, one of

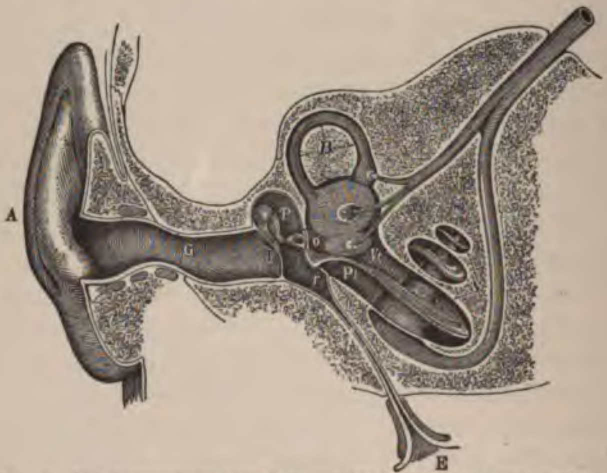


FIG. 96.—Semidiagrammatic section through the right ear (Czermak): *G*, external auditory meatus; *T*, membrana tympani; *P*, tympanic cavity; *o*, fenestra ovalis; *r*, fenestra rotunda; *B*, semicircular canal; *S*, cochlea; *Vt*, scala vestibuli; *Pt*, scala tympani.

fibrous tissue, and an inner layer of mucous membrane—and is also supplied with blood-vessels and nerves. The ear should not be picked with pins, as there is great danger of perforating the drum and causing deafness. The *middle ear* (*P*) contains the small bones of the ear, the incus, stapes, and malleus, which are the smallest bones in the human body. The middle ear is connected with the back part of the throat by the Eustachian tube (*E*), the blocking of which causes deafness. The *internal ear* or labyrinth consists of the vestibule (*Vt*), the cochlea (*S*), and three semicircular canals (*B*), also the ends of the auditory nerve, the nerve of hearing. Behind the ear is a prominence, the *mastoid* process, closely connected with the ear and the brain. Any disease of the middle ear may extend to the mastoid, and diseases of both the middle ear and the mastoid are always liable to affect the brain.

6. Respiratory, Digestive, and Urinary Organs.—The *trachea* (Fig. 97, 3) extends from the larynx to the lungs, then divides into two branches called "bronchi." These again divide into smaller tubes called "bronchial tubes," which finally terminate in extremely fine air-cells.

The *lungs* (Fig. 97, 4–6, 7, 8) are the organs of respiration. They have a light, spongy appearance, and crepitate or crackle when pressed with the fingers, owing to the contained air in them. There are two lungs, one on each side of the chest. The right lung is larger than the left and has three lobes; the left lung, being smaller, owing to the room taken up by the heart, has only two lobes.

The *abdomen* contains the stomach, liver, spleen, intestines, kidneys, and ureters. It is the largest cavity in the body, and is separated from the chest above by the diaphragm and from the pelvic cavity below by the brim of the pelvis. It is not, like the chest, protected on all sides by bone, and consequently its contained organs are easily injured.

The *stomach* lies on the left side directly under the heart (see p. 321).

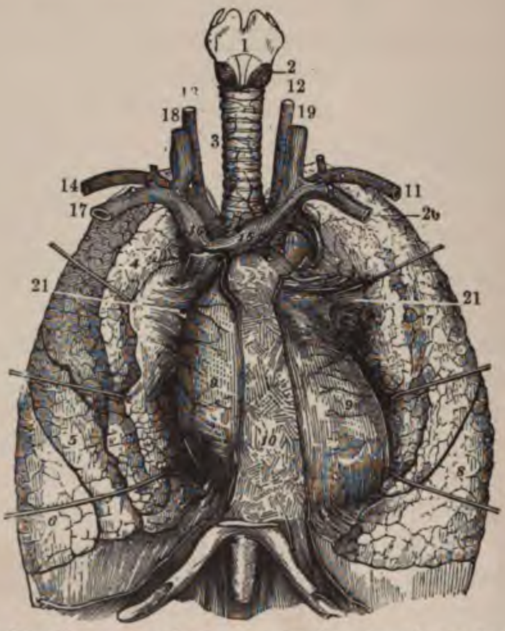


FIG. 97.—Thoracic organs: 1, larynx; 2, crico-thyroid muscles; 3, trachea; 4–6, right lung; 7, 8, left lung; 9, pericardium; 10, mediastinum; 11 and 14, subclavian arteries; 12, 13, carotid arteries; 15, 16, innominate veins; 17, 20, subclavian veins; 18, 19, internal jugular veins; 21, root of lung. The lungs naturally cover the pericardium, but in the figure are represented as held back by hooks.

The *liver*, the largest gland of the body (weighing from 50 to 60 ounces), is situated on the right side of the body under cover of the ribs. Attached to the under side of the liver is a bag called the "gall-bladder," large enough to hold about 1 ounce of bile, which is a greenish-yellow secretion of the liver. *Jaundice* is caused by stoppage of the gall-duct, the bile being carried into the blood and throughout the circulation, and giving the whole body a yellow appearance.

The *pancreas*, or sweetbread, lies across the abdomen below the liver, nearly touching the spleen on the left. The secretion or juice of the pancreas is concerned in the digestion.

The *spleen* is situated at the heart end of the stomach beneath the diaphragm. Its function is obscure.

The *peritoneum* is the serous membrane which lines the abdomen and covers the various organs.

The *intestines* are part of the alimentary canal (see p. 320) continuous with the stomach; the *small intestine* is about 20 feet long, and lies in convolutions or coils in the abdomen, ending in the *large intestine*, (which is about 5 feet long, and runs up the right side of the body, crosses over under the liver and stomach and down the left side, ending with the rectum. The *duodenum* is the first part of the small intestine near the stomach. The *ileum* is the lower half of the small intestine; the *ileo-cecal valve* is the valve between the ileum and the cecum.

The *cecum* is the head of the colon, and lies in the lower part of the right side of the abdomen. Opening from the cecum is the *vermiform appendix* (Fig. 94), a narrow worm-shaped tube from 2 to 5 inches long. Its opening is guarded by a valve, but sometimes food, seeds, fruit-stones, or hard fecal matter slips into the appendix, and inflammation may result (appendicitis).

The *colon* is the first part of the large intestine, and passes up the right side as the *ascending* colon, across the body as the *transverse* colon, and down the left side as the *descending* colon, where it forms the *sigmoid flexure* (Fig. 94), which is curved like an S, and which serves to remove the fecal matter from the body, this action being done by muscles of its own. The colon ends in the *rectum*, which is from 6 to 8 inches long, and which terminates at the *anus*.

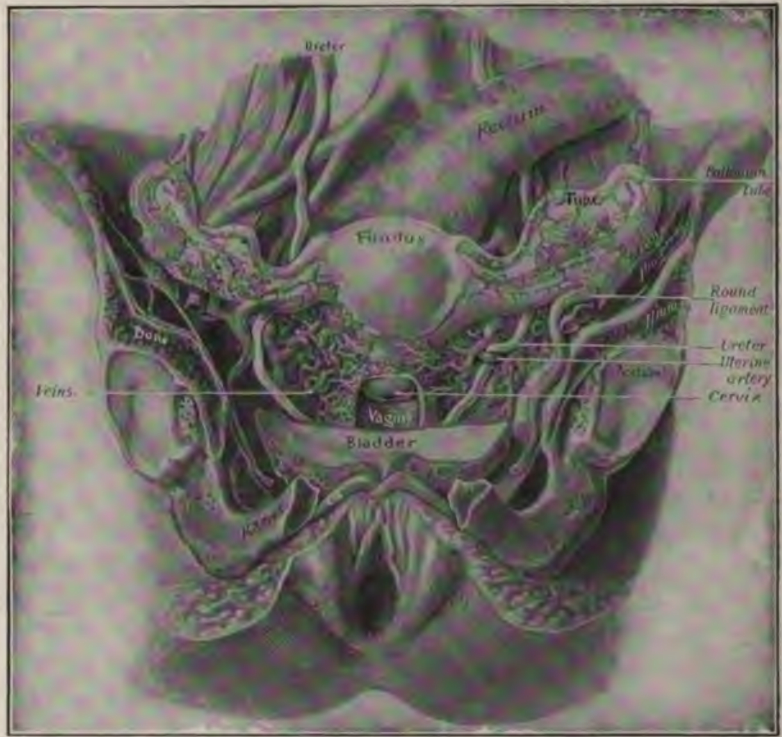
The *omentum* is a fold of the peritoneum lying in front of the bowels like an apron.

The *kidneys* are situated at the back part of the abdominal cavity, one on each side of the upper lumbar region of the spine. They are about 4 inches long, 2 inches wide, and 1 inch thick; the right kidney is a little lower than the left on account of the large space taken up by the liver. The kidneys excrete the urine, which is carried by a tube (from 12 to 16 inches long) called the "ureter," attached to each kidney, and emptying into the bladder. The urine passes drop by drop from the ureters into the bladder, which holds about a pint, and which is emptied by the process of urination. If the urine is retained in the bladder a long time, it may decompose, or rupture of this organ may take place through over-distention.

The *bladder* is situated in the front portion of the pelvis, is oval in shape, and holds about a pint.

The *urethra* is a small canal that conveys the urine from the bladder. The opening of the urethra (the meatus urinarius) opens immediately above the entrance into the vagina.

7. **Internal Female Organs of Generation** (Pl. **8**).—The *womb* or "uterus," as it is more commonly called, is a hollow, pear-shaped organ about 3 inches long and 2



Blood-vessels of the pelvis (Bourgery and Jacob): the anterior part of the pelvis has been removed, and the bladder and the anterior vaginal wall have been partially cut away. The uterus is drawn up, and the Fallopian tubes are displaced into the iliac fossæ (from *An American Text-Book of Obstetrics*).

inches broad at the top, or fundus, and about 1 inch thick. It consists of the *fundus*, which is the rounded upper portion, into each side of which enters a Fallopian tube, of a *body*, and of a *cervix* or neck, which projects into the vagina, and which is about 1 inch long. The *os uteri* is the mouth of the womb. The womb is situated between the bladder and the rectum, and any distention of either of these organs alters its position; for instance, if the bladder is distended with urine, the womb is tipped backward, and if the rectum is distended with fecal matter, it is tipped forward.

The *broad ligaments*, which are composed of folds of peritoneum, connect the sides of the womb with the walls of the pelvis, so that the womb is suspended in the pelvis.

The *Fallopian tubes* are from 3 to 5 inches long. They are attached at one end to the top of the womb, while the other end has a fringe-like appearance, called the "fimbriated extremity," part of which is attached to an ovary.

The *ovaries* are two small oval bodies about 1½ inches in length. They lie on either side of the womb about 1 inch from its top, and are enclosed between layers of the broad ligament.

APPENDIX.

I. GENERAL RULES FOR FEEDING THE SICK, AND HOW TO MAKE CERTAIN ARTICLES OF FOOD.

1. Serving the Food.

The question of serving food, which is one of education and training, is of vast importance in the successful nursing of private patients. Much depends upon observation and tact. Little things are more apt to influence the condition of the patient than large ones, and, no matter how much medical care the patient has received, or how successfully a difficult operation has been performed, or how attentive the nurse has been, the advantages may all be lost through some trifling mistake in the serving of the food. The laboring man is content to eat bread and meat with his fingers and to drink tea from his dinner-pail, but it would make a refined man or woman very unhappy to be compelled to eat from broken dishes and to be served by a nurse who spilled the liquids, who held a cup or a tumbler at the rim in offering drink, instead of holding it at the bottom or by the handle, who served the food cold, who tasted the food in the patient's presence, who had unclean hands, or who wore a soiled apron.

The serving of food requires a great deal of judgment and good taste, and in no branch of her work can a nurse be of more service to a sick patient than in her ability to serve properly the food. The taking of food is the chief event of the day for a sick patient, and the patient's mind should be diverted from her illness in the anticipation of the meal, which should be served daintily and, if possible, should be composed of something unexpected. The tastes of the patient, however, should be consulted as far as possible: while it is unwise to ask the patient beforehand concerning the bill of fare, as it is often the unexpected which pleases, still, if she expresses a preference for a certain dish, it should be supplied, provided it is sanctioned by the physician.

Punctuality should be observed in serving the meals, as frequently the appetite will be lost if the meal is delayed beyond the accustomed hour. When a patient is very ill only the simplest foods are given, and these are prescribed by the doctor. Fluids can conveniently be taken by suction through a bent-glass tube or by a pretty feeding-cup with a spout, the cup being carried to the bedside on a small tray covered with a spotless napkin. The mouth of the patient must afterward be wiped dry with a fresh clean napkin (not with the corner of a face-towel). When convalescence sets in it becomes necessary to vary the food. The dishes selected should be savory, sufficiently varied, and suited to the digestive power of the patient.

In preparing the tray the nurse should be sure first that it is clean on both sides, then to cover it with a spotless tray-cloth, and the dishes, which should be the prettiest and best that the house affords, should be systematically arranged upon it. The tray must not be crowded, and discord in color should always be avoided. A few flowers in a small vase or laid loosely on the tray will add to its attractiveness. Too little rather than too much food should be served, and plenty of time be allowed for the meal, so that the food will be thoroughly masticated and mixed with the digestive juices. Hot food must be served *hot*, the dishes having previously been heated and wiped dry on the outside, and cold food must be served *cold*, lukewarm food being unpalatable. Pains must be taken not to spill the liquids.

When a patient is permitted to sit up out of bed for an hour each day, it is generally best to utilize this hour for dinner, which, being the principal meal of the day, will then be thoroughly enjoyed, and will also be better digested by the patient. If the patient takes the meals in bed, care must be taken that a comfortable position is secured and that the legs are not cramped by the food-tray.

Every nurse of to-day knows something of the science of bacteriology, and that foodstuffs, especially the animal portions, become spoiled through the presence in them of bacteria. Nurses have also heard lectures on, and understand the vast importance of, asepsis in surgical nursing: they would not think of doing a surgical dressing without first making their hands and everything to be used about the dressing aseptic, as the lack of such care might cost the patient her life. The nurse should be equally careful about cleansing the hands before handling food, because, not knowing what germs are on her hands, it is possible thus to infect milk or other food with the bacillus of tuberculosis or of other disease. It is in the weakened stomach of the baby and of the invalid that bacteria develop and cause harmful results. That one has good health notwithstanding the careless preparation of the food he eats, that he eats fruit which has passed through an endless series of dirty hands, that he cools the liquids he drinks with ice gathered from ponds impregnated with every form of bacteria, and that a healthy stomach has the power to destroy many germs, are no arguments against absolute cleanliness and neatness when serving food to the sick.

A surgical dressing must be done before meal-time, and all traces of the dressing cleared away. The bed must be arranged, the patient's hands and face be bathed, and the room set in order before serving the meal. While eating the mind of the patient should be diverted by cheerful conversation, and the tray be removed as soon as the meal is finished.

In most fevers patients are allowed to have a liberal supply of water or beverages, such as orangeade, lemonade, etc., which flush out the kidneys and aid in eliminating the worn-out material generated in the body by the fever. Eight grains of sodium bicarbonate, soda-water, or Vichy water will render sour lemonade effervescing and will make a very refreshing beverage. Cold drinks should be sipped slowly, the thirst being relieved much better by sipping fluids than by quickly drinking them. Strong black coffee should be added to milk; it is a heart- and brain-stimulant, and is very useful in typhoid fever when the patient seems to be sinking into a stupor.

The diet-kitchen outfit may consist of the following appliances and accessories:

A spirit- or gas-light chafing-dish;
A single porcelain-lined saucepan;
A double porcelain-lined saucepan;
An 8-ounce measuring-glass;
A minim measuring-glass;
A cooking-thermometer;

A mince-meat machine; spoons; a glass funnel;
Borax; sodium bicarbonate;
Pancreatin powders.

These, together with other essential articles, should be kept, if possible, in a small room next the patient's bedroom, where light foods can be prepared.

Diet in Convalescence.—The following sick-room dietary has been prepared as a guide for feeding convalescents. The diet for convalescence from typhoid fever may also be selected from it.

FIRST DAY.

Breakfast: Mutton broth with bread-crumbs.
Lunch: Milk-punch.
Dinner: Raw oysters; thin bread and butter with crust removed; sherry wine.
Lunch: Cup of hot beef-tea.
Supper: Milk toast; jelly; cocoa.

SECOND DAY.

Breakfast: Oatmeal with sugar and cream; cup of cocoa.
Lunch: Soft custard.
Dinner: Small piece of tenderloin steak, to be chewed, but not swallowed; baked white potato.
Lunch: Glass of milk.
Supper: Buttered milk-toast (crust removed); jelly; cocoa.

THIRD DAY.

Breakfast: Soft-boiled egg; bread and butter; coffee.
Lunch: Milk-punch.

Dinner: Chicken soup; tender sweetbreads; Bavarian cream; light wine.
Lunch: Egg-nog.
Supper: Raw oysters; bread and butter; tea.

Fourth Day.

Breakfast: Oatmeal with sugar and cream; a tender sweetbread; creamed potatoes; Graham bread and butter; coffee.
Lunch: Glass of milk.
Dinner: Chicken panada; baked potato; bread; tapioca cream.
Lunch: Cup of hot chicken broth.
Supper: Buttered dry toast (crust removed); wine jelly; banquet crackers; tea.

Fifth Day.

Breakfast: An orange; a scrambled egg; oatmeal with sugar and cream; soft buttered toast; coffee.
Lunch: Milk-punch.
Dinner: Cream-of-celery soup; a small piece of tenderloin steak; a baked potato; snow pudding; bread; wine.
Lunch: An egg-nog.
Supper: Calf's-foot jelly; soft-boiled egg; bread and butter; cocoa.

Sixth Day.

Breakfast: Oatmeal; poached eggs on toast; coffee.
Lunch: Cup of chicken broth.
Dinner: Chicken soup; small slice of tender roast beef; baked potato; rice pudding; bread.

Lunch: Glass of milk.
Supper: Baked apples; raw oysters; bread and butter; orange jelly; tea.

SEVENTH DAY.

Breakfast: An orange; mush and milk; scrambled eggs; cream toast; coffee.
Lunch: Cup of soft custard.
Dinner: Mutton soup; small piece of tender beefsteak; creamed potatoes; sago pudding; bread; wine.
Lunch: Cup of beef-tea.
Supper: Sponge-cake with cream; buttered dry toast; wine jelly; cocoa.

EIGHTH DAY.

Breakfast: Boiled fresh fish; oatmeal; Graham bread; coffee.
Lunch: Chicken-broth.
Dinner: Potato soup; breast of roast chicken; mashed potatoes; macaroni; blanc-mange.
Lunch: Cup of mulled wine.
Supper: Cream toast; lemon jelly; chocolate.

The dietary for succeeding days may be selected from that of preceding days. Change of diet may cause a temporary rise in the temperature and pulse.

2. RECIPES FOR INVALID FOODS AND BEVERAGES.

SIMPLE FARINACEOUS FOODS.—**Arrowroot.**—Mix 1 teaspoonful of Bermuda arrowroot with 4 teaspoonsful of cold milk. Stir it slowly into half a pint of boiling milk, and let it simmer for five minutes. It must be stirred all the time, to prevent lumps and to keep it from burning. Add half a teaspoonful of sugar and a pinch of salt, and if desired one of cinnamon. In place of the cinnamon half a teaspoonful of brandy may be used or a dozen large raisins may be boiled in the milk. If the raisins are preferred, they should be stoned and the sugar may be omitted.

Corn-starch or rice-flour gruel is made in the same way.

Boiled-flour Gruel.—Moisten 1 pint of flour with 2 ounces of cold water; make it into a ball and tie it up tightly in a strong cloth. Slightly dampen the cloth, sprinkle it with flour, and boil it hard for ten hours; then take off the cloth, and let the ball dry in a slow oven for ten hours more. Grate 2 teaspoonsful of flour from the dry ball, mix the grated flour with cold water to a smooth paste, and stir it into a ½ pint of boiling milk. Simmer about three minutes, and sweeten.

Oatmeal.—Salt to taste 3 parts of boiling water; then stir in slowly 1 part of oatmeal (H. O.); boil rapidly from twenty to thirty minutes; serve either hot or cold with cream or milk and sugar.

Oatmeal Gruel No. 1.—Take 2 tablespoonsful of oatmeal, 1 saltspoonful of salt, and 1 quart of boiling water. Boil one hour. Strain and serve with milk or cream (Mrs. Lincoln).

Oatmeal Gruel No. 2.—Pound ½ cup of coarse oatmeal until it is mealy. Put it in a tumbler, and fill the tumbler with cold water. Stir well; let it settle; then pour off the mealy water into a saucepan. Fill again and pour off the water, and again repeat this, being careful each time not to disturb the sediment in the bottom of the tumbler. Boil the water twenty minutes. Season with salt. Thin with a little cream or milk. Strain and serve hot (Mrs. Lincoln).

BEEF-TEAS AND EXTRACTS.—The best pieces for beef-tea are the round and rump, as they contain the most and best-flavored juices. Wipe the meat with a wet cloth and remove all fat and skin. Beef-tea should not be allowed to boil, but should be kept at the temperature at which albumin coagulates, which is from 134° to 160°. Boiling water coagulates it, and beef-tea made in this way is without value as food. It is a stimulant. Beef-extract is the pure juice of the meat. Beef-tea is the juice diluted with water. The meat should be cut into small pieces, as, more surfaces being exposed to the water, the juices will be drawn out more quickly. Beef-tea should not be strained, as the sediment contains the nutritious part.

Beef-essence.—Mince finely 1 pound of lean, juicy beef, from which all the fat has been removed; put into a wide-mouthed bottle or fruit-jar and cork tightly. Set the jar in a kettle of cold water over a slow fire, and let it boil for three hours. Strain and season with salt and red pepper.

Bottled Beef-extract.—Cut 1 pound of lean beef into small pieces. Put it into a large-mouthed jar or bottle. Place the jar, covered, in a kettle of cold water, and heat slowly until near the boiling-point. Keep it at this temperature for two hours. Strain and press the meat to obtain all the juice. Season with salt. The water in the kettle should come nearly as high as the meat in the jar. In administering beef-extract, be careful to stir up the sediment.

Beef-juice.—Place a ½ pound of lean, juicy beef on a broiler over a clear hot fire and heat it through. Press out the juice with a lemon-squeezer into a hot cup, add salt, and serve hot with toast or with crackers.

Beef-tea.—Free 1 pound of lean beef from fat, tendon, cartilage, bone, and vessels; chop up fine, put into 1 pint of cold water to digest two hours. Simmer on range or stove three hours, *but do not boil.* Make up for water lost in the evaporation by adding cold water, so that a pint of beef-tea represents 1 pound of beef. Press the beef carefully and strain and flavor to taste.

Beef-tea may rapidly be prepared by placing the jar containing the meat, finely divided, without any water, in an oven for twenty minutes, then add boiling water according to the quantity required.

Beef-tea Peptonized.—To a ½ pound of raw beef, free from fat and finely minced, add 10 grains of pepsin and 2 drops of hydrochloric acid. Put this mixture in a large tumbler and cover with cold water. Let it stand for two hours at a temperature of 90° F., being frequently stirred. Strain and serve in a red glass, ice-cold. Peptonized food does not keep well, and should never be used more than twelve hours old.

Beef-tea with Oatmeal.—Mix 1 teaspoonful of well-cooked oatmeal with 2 tablespoonsful of boiling water. Add 1 cupful of strong beef-tea and bring to the boiling-point. Salt and pepper to taste and serve with toast or with crackers. Rice may be used instead of the oatmeal.

Raw-meat Diet.—Scrape pulp from a good steak, season to taste, spread on thin slices of bread; sear bread slightly and serve as a sandwich.

Meat Cure.—Procure a slice of steak from top of the round—fresh meat without fat; cut the meat into strips, removing all fat, gristle, etc. with a knife. Put the meat through a mincer at least twice. The pulp must then be well beaten up in roomy saucepan with cold water or skimmed beef-tea to the consistency of cream. The right proportion is 1 teaspoonful of liquid to 8 teaspoonsful of pulp; add black pepper and salt to taste; stir the mince briskly with a wooden spoon the whole time it is cooking, over slow fire or on cool part of covered range, until hot through and through and the red color disappears. This requires about half an hour. When done it should be a soft, smooth, stiff *purée* of the consistency of a thick paste. Serve hot. Add for first few meals the softly-poached white of an egg.

Sweetbreads.—Keep the sweetbreads in cold water until ready to use; then remove the fat, pipes, and membranes. Put them into boiling salted water, add 1 tablespoonful of lemon-juice, and cook twenty minutes. Drain and cover with cold water. Let them stand a few minutes, then drain, and they are ready to be prepared for the tray.

BROTHS.—**Chicken Broth.**—Skin and chop up a small chicken or half a large fowl: put, bones and all, with a blade of mace, a sprig of parsley, 1 tablespoonful of rice, and a crust of bread, in a quart of water and boil for an hour, skimming it from time to time. Strain through a coarse colander.

Clam Broth.—Wash thoroughly six large clams in the shell; put them into a kettle with 1 cupful of water; bring to boil, and keep it boiling one minute: the shells open, the water takes up the proper quantity of juice, and the broth is ready to pour off and serve hot. Add a teaspoonful of finely pulverized cracker-crumbs, a little butter, and salt to taste.

Egg Broth.—Beat together 1 egg and ½ teaspoonful of sugar until very light; add 1 pint of boiling water, stirring all the time; add ½ teaspoonful of salt. Serve at once.

Mutton Broth.—The lean part of the neck or loin should be chosen, be cut up into small pieces, and all superfluous fat be removed: about 1 pound of mutton thus prepared should be placed in a saucepan containing 1 pint of cold water and placed on the fire; as the scum rises to the top it should carefully be removed; when this ceases let the broth boil for about two hours, strain, and flavor. A teaspoonful of pearl barley, added when the broth begins to boil, is often acceptable. Warm up as wanted.

OYSTERS.—**Fricasseed Oysters.**—To 1 cupful of milk add a ½ cupful of oyster liquor. When the liquids boil add 1 teaspoonful of flour and ½ teaspoonful of butter, rubbed together; boil until it thickens; then add 1 dozen oysters; cook until the oysters are plump and their edges curl; serve immediately, plain or on toast.

Peptonized Oysters.—Mince 6 large or 12 small oysters; add to them, in their own liquor, 5 grains of extract of pancreas with 15 grains of sodium bicarbonate (or one Fairchild peptonizing tube). This mixture is then brought to blood-heat (98° F.), and maintained, with occasional stirring, at that temperature thirty minutes, when 1 pint of milk is added and the temperature kept up from ten to twenty minutes. Finally, the mass is brought to the boiling-point, strained, and served. Gelatin may be added, and the mixture served cold as a jelly. Cooked tomato, onion, celery, or other flavoring suited to individual taste may be added at beginning of the artificial digestion.

Oyster Stew.—Take 1 pint of oysters, 1 pint of milk, 1 teaspoonful of salt, ¼ cupful of water, 1 tablespoonful of butter, 1 saltspoonful of pepper. Scald the milk. Wash the oysters by adding the water, and remove all shells. Drain, saving the liquor. Put the liquor into a stewpan and heat slowly. Skim carefully. When clear, add the oysters and cook slowly until the edges curl and they are plump. Add the hot milk, butter, salt, and pepper, and serve. Do not let the oysters boil, as that toughens them and renders them indigestible.

Oyster Broth.—Cut into small pieces 1 pint of oysters; put them into a ½ pint of cold water, and let them simmer gently for ten minutes over a slow fire. Skim, strain, and add salt and pepper.

PUDDINGS.—**Arrowroot Pudding.**—Add the yolks of 2 eggs to the plain arrowroot recipe (see p. 347), with 1 teaspoonful of powdered white sugar, mix well and bake in a lightly buttered dish for ten or fifteen minutes.

Custard Pudding.—Break 1 egg into a teacup, and mix thoroughly with sugar to taste; then add milk to nearly fill the cup, mix again, and tie over the cup a small piece of linen; place the cup in a shallow saucepan half full of water and boil for ten minutes.

If it is desired to make a **Light Batter Pudding,** a teaspoonful of flour should be mixed in with the milk before tying up the cup.

Corn-flour Pudding.—Take 1 pint of milk, and mix with it 2 tablespoonsful of the flour: flavor to taste, then boil the whole eight minutes; allow it to cool in a mould, and serve up with or without jam.

Rice Pudding.—Take 1 teacupful of rice; wash and pour over it boiling water, and let stand five minutes; then drain off the water and add a cupful of sugar to the rice, a little nutmeg, 2 quarts of milk, and one egg. Bake slowly about two hours, stirring occasionally until the last half hour, then brown.

Sago Pudding.—Same as above recipe, sago being substituted for rice.

Snow Pudding.—Dissolve half a box of gelatin in 1 pint of cold water; when soft, add 1 pint of boiling water, the grated rind and juice of 2 lemons, and 2½ cupsful of sugar. Let the gelatinized water stand until cold and begins to stiffen. Then beat in the well-beaten whites of 5 eggs. Pour into a mould and set on ice. Serve with *Custard Sauce*—1 quart of rich milk, the yolks of 5 eggs, with 2 extra eggs added, and a ½ cupful of sugar. Flavor with vanilla.

SOUPS.—**Chicken Soup.**—An old fowl will make a more nutritious soup than a young chicken. Skin, cut it up, and break the bones with a mallet. Cover well with cold water, and boil slowly for three or four hours. Salt to taste. A little rice may be boiled with it if desired.

Mutton Soup.—Cut up fine 2 pounds of lean mutton, without fat or skin. Add 1 tablespoonful of barley, 1 quart of cold water, and a teaspoonful of salt. Let it boil slowly for two hours. If rice is used in place of barley, it will not need be put in until half an hour before the soup is done.

Oyster Soup.—A cupful of oysters with their liquor are placed in a saucepan and brought to a boil. Skim them and add 1 cupful of hot milk, 1 tablespoonful of butter, ½ teaspoonful of salt, ⅛ teaspoonful of pepper; bring to a boil and serve at once.

Potato Soup.—Mash 6 boiled potatoes, 1 quart of milk, ¼ pound of butter. Season with pepper and salt. While mashing the potatoes add the butter and gradually pour in the milk. Stir well and strain through a sieve, and heat once more. Beat up an egg and put it in the soup-tureen, and pour over it the soup when ready to serve.

Cream of Tomato Soup.—Heat separately 2 tablespoonfuls of tomato juice and ½ cupful of milk. To the tomato juice add ⅛ teaspoonful of soda. Melt 1 tablespoonful of butter in small saucepan and add 1 tablespoonful of flour, stirring until it thickens, and then add it to the milk, stirring carefully; add ¼ teaspoonful of salt and a dash of pepper; add the heated tomato juice to the soup. Serve at once with crisp crackers.

White Celery Soup.—To ½ pint of strong beef-tea add an equal quantity of boiled milk, slightly and evenly thickened with flour. Flavor with celery-seeds or pieces of celery, which are to be strained out before serving. Salt to taste.

MISCELLANEOUS DISHES.—**Macaroni.**—Take of the macaroni ¼ of a pound and break into inch-lengths, and cook twenty minutes in 3 pints of salted boiling water. Turn it into a colander and pour over it cold water and drain. Make a sauce of 1 tablespoonful each of butter and flour and 1½ cupsful of hot milk; salt. Put on a dish alternately a layer of macaroni, then a layer of the sauce, covering the top layer with fine bread-crumbs and with bits of butter dotted over (a little cheese may be grated over). Bake until brown.

Creamed Potatoes.—Put 1 tablespoonful of butter into a frying-pan, and when it bubbles add 1 tablespoonful of flour; add 1 cupful of hot milk; salt and pepper to taste. Then put in 1 pint of cold boiled potatoes, cut into small dice; cook until thoroughly hot and serve.

Omelet.—Take 4 eggs, 4 tablespoonfuls of milk, ½ teaspoonful of salt, 1 saltspoonful of pepper. Beat the eggs slightly with a spoon until you can take up a spoonful. Add the salt, pepper, and milk. Mix well. Put 1 tablespoonful of butter into a hot omelet-pan. When melted and hot pour in the egg, letting it spread over the pan. When the egg begins to harden, draw the cooked part back toward you, letting the uncooked egg take its place. So continue until the egg is of a creamy consistency. Place the pan over the hottest part of the fire for a few seconds to brown the omelet slightly. Fold over and turn out upon a hot plate (Mrs. Lincoln).

Poached Eggs.—Have a frying-pan nearly full of hot water, not boiling but simmering. Add 1 teaspoonful of salt. Place in the pan as many muffin rings as there are eggs to be cooked. Break the eggs carefully into the rings. Dip the water over them with a spoon until a film has formed on the top of the yolk and the white is firm. Remove the rings and take up the eggs with a skimmer. Serve on buttered toast. Place a bit of butter and a little salt and pepper on each egg.

Scrambled Eggs.—Take 4 eggs, ½ teaspoonful of salt, 1 saltspoonful of pepper, ¼ cupful of milk, 1 tablespoonful of butter. Beat the eggs slightly, add the salt, pepper, and milk. Put the butter into a saucepan; when melted and hot add the eggs. Stir over hot water until of a soft, creamy consistency. Serve on buttered toast.

Soft-boiled Eggs.—Drop 2 eggs into enough boiling water to cover them. Let them stand on the back of stove where the water will keep hot, but not boil, for eight minutes. An egg to be properly cooked should never be boiled in boiling water, as the white hardens unevenly before the yolk is cooked. The yolk and white should be of a jelly-like consistency.

Chicken panada is made by rubbing together in a mortar the meat from the breast and wings of a roast or a boiled chicken, with an equal quantity of stale bread; then add gradually the water in which the chicken was boiled or other broth; boil for a few moments and rub through a fine sieve.

Salisbury Meat-cake.—Take a piece of tender rump-steak about half an inch thick; place it on a clean board, and with a sharp knife scrape off all the soft part until there is nothing left but the tough, stringy fibre. Take the soft part thus obtained and season with salt and pepper; make it into small flat cakes about half an inch thick, and broil them over a brisk fire for two or three minutes. Serve on thin slices of buttered toast.

Infant's Food.—About 1 teaspoonful of gelatin should be dissolved by boiling in ½ pint of water. Toward the end of the boiling 1 gill of cow's milk and 1 teaspoonful of arrowroot (made into a paste with cold water) are to be stirred into the solution, and from 1 to 2 tablespoonsful of cream added just at the termination of the cooking. It is then to be moderately sweetened with white sugar, when it is ready for use. The whole preparation should occupy about fifteen minutes.

PREPARED MILK.—**Peptonized Milk—Cold Process.**—Into a clean quart bottle put 1 peptonizing powder (extract of pancreas 5 grains, sodium bicarbonate 15 grains) or the contents of 1 peptonizing tube (Fairchild); add 1 teacupful of cold water, shake; add 1 pint of fresh cold milk; shake the mixture again, and place on ice. Use when required without subjecting to heat. Milk so prepared will have a faintly bitter flavor; it may be sweetened to taste or used in punch, gruels, etc., like ordinary milk.

Warm Process.—Mix the peptonizing powder with water and milk as described above; place bottle in water so hot that the whole hand can be held in it for a minute without discomfort; keep the bottle there ten minutes; then put on ice to check further digestion. Do not heat long enough to render the milk bitter. Peptonized milk may be sweetened, flavored with grated nutmeg, or taken with carbonated mineral water. Put the mineral water first into the glass, then quickly pour in the peptonized milk, and drink during effervescence.

Sago Milk.—Wash 1 tablespoonful of pearl sago and soak it over night in 4 tablespoonsful of cold water. Put the sago into a double kettle with 1 quart of milk and boil until the sago is nearly dissolved. Sweeten to taste and serve either hot or cold.

Koumyss.—Take an ordinary beer-bottle with patent shiftable stopper; put in it 1 pint of milk, the sixth part of a cake of Fleischmann's yeast, or 1 tablespoonful of fresh lager-beer (brewer's) yeast, ½ tablespoonful of white sugar reduced to syrup; shake well and allow to stand in refrigerator two or three days, when it may be used. It will keep there indefinitely if laid on its side. Much waste can be saved by preparing the bottles with ordinary corks wired in position and drawing off the koumyss with a champagne tap.

TOASTED BREAD.—**Toast (dry).**—Cut thin slices of bread into strips; toast carefully and evenly without breaking, slightly butter, and serve immediately on a hot plate.

Cream Toast.—Take 1 cupful of cream, 1 saltspoonful of salt, 2 slices of dry toast. Scald the cream. Add the salt, and pour it over the toast, or make the same as milk toast, using cream in place of the milk. If preferred, the slices of toast may be first dipped in hot salted water.

Egg Toast.—Take 1 egg, 1 saltspoonful of salt, 1 cupful of milk, 6 slices of bread. Beat the egg slightly, add the salt and milk. Soak slices of bread in this until soft. Butter a hot griddle, put on the bread; when one side is brown, put a bit of butter on each slice, then turn and brown the other side. Serve with sugar and cinnamon (Mrs. Lincoln).

Milk Toast.—Take 1 cupful of milk, ½ tablespoonful of corn-starch, ½ tablespoonful of butter, 2 slices of dry toast, 1 saltspoonful of salt. Scald the milk. Melt the butter in a saucepan; when hot and bubbling add the corn-starch. Pour in the hot milk slowly, beating all the time until smooth. Let it boil up once. Then add the salt. Toast two slices of bread. Pour the thickened milk over the slices. Let it stand five minutes. Serve.

Peptonized Milk Toast.—Over 2 slices of toast pour 1 gill of peptonized milk (cold process); let stand on the back part of the range for thirty minutes. Serve warm or strain and serve fluid portion alone. Plain light sponge-cake may be similarly digested.

Invalid's Lunch.—A nice way to prepare a very light lunch for an invalid (to be taken with a cup of tea) is to toast 3 milk crackers; then pour boiling water over them, drawing it off immediately; spread jam or marmalade over the toasted crackers and pile them up on a dish. Set the dish of crackers in the oven while making the tea, and take both to the sick-room. This lunch will prove appetizing and refreshing if unexpected.

DESSERTS.—**Baked Apples.**—Core and pair 2 tart apples; fill the core-holes with sugar; grate over the apples a little nutmeg; add a little water to baking-pan and put in oven and bake until the apples are soft. Serve with rich milk or cream. Sprinkle with icing sugar if not sweet enough.

Bavarian Cream.—Whites of 6 eggs beaten very light; 1 quart whipped cream; 1 ounce of gelatin (soak one hour in cold water, drain, and dissolve in a little hot water); flavor with 1 teaspoonful of vanilla. Beat the eggs and cream together, add the sugar to sweeten, flavor, then add the gelatin. Beat again until the mixture begins to thicken, and pour into moulds. Serve very cold with cream.

Blanc-mange.—Mix 1 tablespoonful of cornstarch with 1 tablespoonful of fine sugar; make into a smooth paste with cold water. Heat 2 cupfuls of milk in a double boiler; add the paste and stir until smooth. Cook for ten minutes; then remove from fire and add ¼ teaspoonful of vanilla flavoring; pour into a moistened mold and set in a cool place. Serve cold with sugar and cream.

Blanc-mange of Rice.—Simmer ½ pint of milk with 1 tablespoonful of pounded white sugar until near boiling; then stir in 2 ounces or 1 large tablespoonful of ground rice previously mixed with ½ pint of milk until smooth; boil for ten minutes, stirring all the while, and pour into a moistened mold and serve cold.

Baked Custard.—Beat 2 eggs slightly; add 1 tablespoonful of sugar, ⅛ teaspoonful of salt, 2 cupfuls of milk, and ¼ teaspoonful of vanilla flavoring; mix thoroughly; pour in custard cups buttered on the inside; grate nutmeg over the top; set in a pan of water and bake in moderate oven until firm.

Soft Custard.—Take of cornstarch 2 tablespoonfuls to 1 quart of milk; mix the corn with a small quantity of the milk and flavor; beat up 2 eggs; heat the remainder of the milk to *near* boiling; then add the mixed corn, the eggs, 4 tablespoonfuls of sugar, a little butter, and salt. Boil the custard two minutes, stirring briskly.

Calf's-foot Jelly.—Thoroughly clean 2 feet of a calf, cut into pieces, and stew in 2 quarts of water until reduced to 1 quart; when cold take off the fat and separate the jelly from the sediment. Then put the jelly into a saucepan, with white wine and brandy and flavoring to taste, with the shells and whites of 4 eggs well mixed together; boil for a quarter of an hour, cover it, and let it stand for a short time, and strain while hot through a flannel bag into a mould.

Lemon Jelly.—Take half a box of gelatin, 1 cupful of cold water, 1 pint of boiling water, 1 cupful of sugar, ½ cupful of lemon-juice. Soak the gelatin in the cold water twenty minutes or until soft. Add boiling water, sugar, and lemon-juice; strain (Mrs. Lincoln).

Orange Jelly.—Dissolve half a box of gelatin in a ½ cupful of cold water. Take the juice of 6 oranges and of 2 lemons, 1 cupful of sugar, and 1 cupful of *boiling* water. Stir all together and strain. Put in a cold place and serve with "kisses" or a white cake. This jelly can be attractively served by placing it in the skins of the oranges cut in half and the edges notched. The pulp of the oranges must carefully be removed, and the skins thrown into cold water until required, then dried inside and filled with the jelly.

Peach Foam.—Take 3 or 4 ripe peaches; peel and cut into small pieces; place them in a bowl with half a cupful of powdered sugar and the white of 1 egg; beat with a fork until it forms a thick smooth mass. Serve in a saucer, with or without cream.

Tapioca Cream.—Take 1 pint of milk, 2 tablespoonsful of tapioca, 2 tablespoonsful of sugar, 1 saltspoonful of salt, 2 eggs. Wash the tapioca. Add enough water to cover it, and let it stand in a warm place until the tapioca has absorbed the water. Then add the milk and cook in a double boiler, stirring often until the tapioca is clear and transparent. Beat the yolks of the eggs. Add the sugar and salt and the hot milk. Cook until it thickens. Remove from the fire. Add the whites of the eggs, beaten stiff. When cold add 1 teaspoonful of vanilla.

Peptonized-milk Jelly.—First take about half a box of Nelson's gelatin, and set it aside to soak in 1 teacupful of cold water until needed; take 1 pint of specially peptonized milk, heated hot; pare 1 lemon and 1 orange, and throw the rinds into the specially-prepared milk; squeeze the juice of the lemon and orange into a glass, strain, and mix with it 2 or 3 tablespoonsful of wine or of brandy; add to the milk, stirring well; strain through gauze, and when cooled to a syrupy consistence, so as to be almost ready to set, pour into moulds and set in a cool place. Do not pour the milk into the moulds until it is nearly cool, otherwise it will separate in setting.

Wine Jelly.—Take half a box of gelatin, ½ cupful of cold water, 1 pint of boiling water, 1 cupful of wine, 1 cupful of sugar, 1 lemon. Soak the gelatin in the cold water until soft. Add the boiling water, wine, sugar, and lemon-juice. Strain. Keep on ice until ready to serve (Mrs. Lincoln).

Junket.—Sweeten to taste 1 quart of fresh milk in a shallow dish, and stir in liquid rennet 1 tablespoonful;

set near the stove, where it will get warm, and as soon as it begins to thicken set it on ice; serve with preserves and cream. This is an excellent dish for invalids; it may be flavored by grating nutmeg on the surface or by adding a few drops of brandy.

Irish Moss.—Wash thoroughly a handful of Carrageen moss, pour over it 2 cups of boiling water, and let it stand where it will keep hot, but not boil, for two hours. Strain, add the juice of 1 lemon, and sugar to taste.

Irish-moss Blanc-mange.—Take 1 quart of milk, ½ cupful of Irish moss, 1 saltspoonful of salt, 1 teaspoonful of vanilla. Pick over and wash the Irish moss, and let it soak in cold water fifteen minutes. Drain off the water. Add the milk and cook in a double boiler until it thickens when cold. Strain. Add the salt and vanilla and turn into a mould. When cold serve with sugar and cream, also with sliced bananas (Mrs. Lincoln).

Snow-eggs.—Take a small teacupful of new milk and boil it in a small, shallow saucepan with a little sugar; while it is boiling break 1 egg, putting the yolk and white in separate cups; whip up the white to a fine light froth, and when the milk is quite boiling take a large spoonful at a time of the white, place it on the top of the milk for a moment or two, then turn it, and when sufficiently solid lift it out on a slice; then mix up the yolk with some sugar, add the boiling milk, mix and boil again for a few minutes, then pour around the white and serve.

Whipped Cream.—Mix 2 gills of rich cream, ½ cup of pulverized sugar, and 2 tablespoonsful of sherry wine; put on ice for an hour, as cream whips much better if chilled; whip with an egg-beater, and as the froth rises skim off the latter, and lay it on a sieve to drain, returning the cream which drips away, to be whipped over again. Place on the ice a short time before serving.

Wine Whey.—Put 2 pints of milk into a saucepan and stir over a clear fire until nearly boiling; then add 1 gill (2 wineglasses) of sherry wine, and simmer a quarter of an hour, skimming off the curd as it rises. Add 1 tablespoonful more of sherry, and skim again for a few minutes; strain through coarse muslin. Lemon-juice (2 tablespoonsful) may be used instead of the sherry wine.

BEVERAGES.—**Chocolate.**—Take 2 squares of vanilla chocolate to each coffee-cupful of milk. Grate the chocolate and wet it with cold milk and stir into the milk when it boils. Whip a tablespoonful of cream, and beat it into the chocolate just as it is taken from the stove. This makes 1 cup of rich, delicious chocolate. Do not let it *boil*, as it becomes oily and loses its fine fresh flavor.

Cocoa.—Allow 1 teaspoonful of cocoa for each cup; add sufficient hot water to form a paste; pour on *boiling* milk (or milk and water) and sweeten to taste; five minutes' boiling will improve the cocoa (Wilbur).

Coffee.—Stir together 2 tablespoonsful of freshly-ground coffee, 4 of cold water, and half an egg. Pour upon them 1 pint of boiling water, and let them boil for five minutes. Stir down the grounds, and let the coffee stand where it will keep hot, but not boil, for five minutes longer. Sugar and cream should be put into the cup first in serving, and the coffee poured upon them.

Coffee (French).—Some persons prefer filtered to boiled coffee. Filtered coffee is best made in a French biggin, consisting of two tin vessels, one fitting into the other, the upper one being supplied with strainers. The coffee, very finely ground, is placed in this utensil, and the boiling water allowed slowly to percolate through it. The pot should be set where it will keep hot, but not boil, until the water has gone through. Pouring it through the coffee a second time will make it stronger, but it loses in flavor. *Café noir* is always made in this way.

Crust Coffee.—Take 1 pint of crusts—those of Indian bread are the best—brown well in a quick oven, but do not let them burn; pour over them 3 pints of boiling water and steep for ten minutes. Serve with cream.

Nutritious Coffee.—Dissolve a little isinglass or gelatin (Knox) in water; put ½ an ounce of freshly-ground coffee into a saucepan with 1 pint of new milk, which should be nearly boiling before the coffee is added; boil both together for three minutes; clear it by pouring some of it into a cup and dashing it back again; add the isinglass, and leave the coffee on the back part of the range for a few minutes to settle. Beat up 1 egg in a breakfast-cup, and upon it pour the coffee; if preferred, drink without the egg.

Rice Coffee.—Parch and grind like coffee a ½ cupful of rice. Pour over it 1 quart of boiling water, and let it stand where it will keep hot for a quarter of an hour; then strain, and add boiled milk and sugar. This is nice for children.

Egg-nog.—Scald some new milk by putting it, contained in a jug, into saucepan of boiling water, *but do not allow the milk to boil.* When cold, beat up a fresh egg with a fork in a tumbler with some sugar; beat to a froth, add a dessertspoonful of brandy, and fill up tumbler with the scalded milk.

Egg Flip.—Beat the yolk of 1 egg with ½ teaspoonful of sugar until light and creamy; add 1 wineglass of sherry or 1 dessertspoonful of brandy; add to this the white of 1 egg beaten stiff. Should be served at once.

Lemonade.—Squeeze the juice from 1 lemon. Add 2 tablespoonsful of sugar and 1 cup of water. Strain and serve.

Lemon Sherbet.—Take 6 lemons, 1 tablespoonful of gelatin, 1 quart of cold water, 1 pint of sugar. Soak the gelatin in ¼ cupful of cold water twenty minutes. Then add ¼ cupful of boiling water, the juice of the lemons, the cold water, and the sugar. Strain and freeze.

The water used in soaking and dissolving the gelatin should be part of the quart of water. In freezing, use one part salt to three parts finely broken ice. Rock salt is most generally used. If you have no freezer, a very good sherbet may be made by freezing it in a tin pail packed in a pailful of salt and ice. Let it stand fifteen minutes. Remove the cover, scrape the frozen mixture from the side of the pail, mix thoroughly, cover, and let it stand fifteen minutes more; then scrape down again. Repeat this process until the mixture is frozen sufficiently (Mrs. Lincoln).

Egg Lemonade.—Beat 1 egg with 1 tablespoonful of sugar until very light; stir in 3 tablespoonsful of cold water and the juice of a small lemon; fill glass with pounded ice and drink through a straw or a glass tube.

Sterilized Milk.—Put the required amount of milk in clean bottles (if for infants, each bottle holding enough for one feeding). Plug the mouths of the bottles lightly with rubber stoppers; immerse to their shoulders in a kettle of cold water; boil twenty minutes; or, better, steam thirty minutes in ordinary steamer; firmly push the stoppers in the bottles, cool them rapidly, and keep in refrigerator. Warm each bottle just before using.

Milk and Albumen.—Put into a clean quart bottle 1 pint of milk, the whites of 2 eggs, and a small pinch of salt. Cork and shake hard for five minutes.

Milk-punch.—Take ½ pint of fresh cold milk and add 2 teaspoonfuls of sugar, and stir well until dissolved; then add 1 ounce either of brandy or sherry wine.

Milk-shake.—To 6 ounces of milk add 2 teaspoonfuls of sugar and a teaspoonful of vanilla; place in a wide-mouthed bottle with some cracked ice; cork securely and shake well. Sherry wine may be used instead of the vanilla, or an egg may be added previous to shaking.

Mulled Wine.—Take ½ cup of boiling water, into which put 2 teaspoonfuls of broken stick-cinnamon and 6 whole cloves, and let all steep for ten minutes; then strain. Now take 2 eggs and 2 tablespoonfuls of sugar; beat them together until very light, and stir into the spiced water. Pour from height into this mixture a cupful of sweet wine *boiling hot* (the wine should not be boiled in a tin vessel). By pouring this preparation from one pitcher to another several times it will become light and foamy. Serve hot.

Orangeade.—Substitute orange-juice for that of lemon in the recipe for *Lemonade.*

Orange Sherbet.—Take 1½ cupsful of orange-juice, 1 tablespoonful of gelatin, ¼ cupful of cold water, ¼ cupful of boiling water, 1 cupful of sugar, 1 pint of cold water. Soak the gelatin in the cold water. Then add the boiling water, the orange-juice, the sugar, and the cold water. Strain and freeze. Any kind of fruit-juice, sweetened and diluted, may be used in place of the orange-juice.

Tea.—Scald out the teapot and put in the tea, using 1 teaspoonful for each cupful. Pour on *boiling* water, and let teapot stand four or five minutes. If allowed to stand too long, the *tannin* in the tea is developed, which not only darkens the tea, but also renders it hurtful.

Flaxseed Tea.—Flaxseed (whole), 1 ounce; white sugar, 1 ounce (heaping tablespoonful); licorice-root, ½ ounce (two small sticks); lemon-juice, 4 tablespoonsful. Pour on these materials 2 pints of boiling water; let it stand in a hot place four hours; strain off the liquor.

Albumen-water.—Stir the whites of 2 eggs into a ½ pint of ice-water, without beating; add enough salt or sugar to make it palatable.

Apple-water.—Slice into a pitcher ½ a dozen juicy sour apples; add 1 tablespoonful of sugar, and pour over them 1 quart of boiling water. Cover closely until cold, then strain.

Barley-water.—Wash 2 ounces (wineglassful) pearl barley with cold water. Boil it five minutes in fresh water; throw both waters away. Pour on 2 quarts boiling water; boil down to 1 quart. Flavor with thinly-cut lemon-rind; add sugar to taste. Do not strain unless at the patient's request.

Gum-arabic Water.—Dissolve 1 ounce of gum-arabic in 1 pint of boiling water, add 2 tablespoonsful of sugar, a wineglassful of sherry, and the juice of 1 large lemon. Cool, and add ice.

Lime-water.—Pour 2 quarts of hot water over fresh unslaked lime of the size of a walnut; stir until slaked, and let stand until clear, then bottle. Lime-water is often ordered with milk to neutralize acidity of the stomach.

Rice-water.—Pick over and wash 2 tablespoonsful of rice; put into a granite saucepan with 1 quart of boiling water; simmer two hours, when rice should be softened and partially dissolved; strain, add saltspoonful of salt; serve warm or cold. May add sherry or port wine, 2 tablespoonsful.

Tamarind-water.—A very refreshing drink may be made by adding 1 pint of hot water to 1 tablespoonful of preserved tamarinds, and setting aside to cool.

Toast-water.—Toast 3 slices stale bread to a dark brown, but do not burn. Put them into a pitcher; pour over them 1 quart of boiling water; cover closely and let stand on ice until cold; strain. May add wine and sugar.

Whey.—Heat 1 pint of milk to 100° F.; add 2 teaspoonfuls of essence of pepsin: beat with a fork in order to separate the curd; strain through a fine strainer. Should be served cold.

MINERAL WATERS.

Alkaline waters contain sodium carbonate and bicarbonate in comparatively large amounts. The conditions in which these waters produce their best effects are—Chronic gastric catarrh, especially with hyperacidity and catarrhal inflammation of the mucous membrane of the biliary passages. Good results have been obtained in acute catarrhal nephritis; also in lithemia, gout, and chronic rheumatism.

Carbonic-acid waters owe their potency to the presence of carbonic-acid gas. Any variety of water may be found impregnated with this gas, whose presence possibly increases the diuretic effects of the water. Fever-patients find these waters very agreeable. The addition of this gas acts as a sedative to the gastro-mucous membrane, and when taken cold and in sips relieves nausea and tends to check vomiting. Carbonic-acid water added to milk is admirably received by some patients with irritable stomach, and occasionally milk will be accepted in this form when it is absolutely refused in the pure state. Another very popular use to which these waters are put is in diluting wines.

Chalybeate waters are those holding in solution one or more of the iron compounds, most frequently ferrous bicarbonate and ferrous oxid. Iron waters owe their virtues to the presence of iron, which usually exists in the form of the bicarbonate of the protoxid, held in solution by an excess of carbonic-acid gas. The ordinary indications for the use of iron are met by employing waters of this class. They are useful in anemia, but usually have other constituents, whose administration may or may not be indicated in certain cases.

Purgative waters usually owe their properties to sodium sulphate and magnesium sulphate. When a gentle saline laxative is indicated, these waters often give better results than either Epsom or Glauber's salt, and are therefore of greater service. In congestion of the liver, chronic gastric catarrh with atony, jaundice, lithemia, gout, and in the obese, the regular use of water of this class properly selected and administered yields excellent results.

Saline waters contain common salt in solution, also small quantities of the chlorids, of the alkalies, and of alkaline earths. This saline when taken into the stomach dissolves albumin and starches; promotes digestion and absorption of food; supplies the intestines with chyme rich in albumin and starches; enters the blood, which carries the salt to all the tissues of the body after supplying its own needs. The usefulness of these waters, however, is very restricted. Good results may be expected in certain dyspepsias with defective gastric secretion and sluggishness of the bowels. In certain cases of dyspepsia these results are best obtained by administering the water early in the morning, before breakfast; when rapid absorption is necessary it should be taken *hot.* Preference should be given to those springs charged with carbonic-acid gas, which greatly increases the palatableness of this class of waters. The therapeutic dose is from 1 to 5 f℥ daily.

Sulphuretted waters are due to the presence in the water of sulphuretted hydrogen gas, and they usually contain the sulphates of sodium and potassium. When taken internally, they augment peristalsis and perspiration. Frequently sulphur springs are used as baths, and with good results, especially in chronic skin-affections—such as eczema—in rheumatism, and in gout. The waters are useful in constipation, and are asserted to have produced good results in cases of chronic bronchitis and phthisis. In all these diseases they are administered internally and used externally as baths.

II. WEIGHTS AND MEASURES.

APOTHECARIES' WEIGHT.

Pound—℔.		Ounces—℥.		Drachms—ʒ.		Scruples—℈.		Grains—gr.		Metric grammes.
1	=	12	=	96	=	288	=	5760	=	372.96
		1	=	8	=	24	=	480	=	31.08
				1	=	3	=	60	=	3.885
						1	=	20	=	1.295

APOTHECARIES' (WINE) MEASURE.

Gallon—C.		Pints—O.		Fluidounces—f℥.		Fluidrachms—fʒ.		Minims—♏.
1	=	8	=	128	=	1024	=	61,440
		1	=	16	=	128	=	7680
				1	=	8	=	480
						1	=	60

COMPARATIVE VALUES OF APOTHECARIES' AND METRIC FLUID MEASURES.

Minims.		Cubic centimetres.	Minims.		Cubic centimetres.	Minims.		Cubic centimetres.
1	=	0.061	11	=	0.678	40	=	2.36
2	=	0.123	12	=	0.739	50	=	3.08
3	=	0.185	13	=	0.801	Fluidrachms.		
4	=	0.246	14	=	0.862	1	=	3.7
5	=	0.308	15	=	0.924	2	=	7.39
6	=	0.370	16	=	1.00	3	=	11.09
7	=	0.431	17	=	1.06	4	=	15.00
8	=	0.493	18	=	1.12	5	=	18.50
9	=	0.544	20	=	1.23	6	=	22.50
10	=	0.616	30	=	1.84	7	=	26.00

Fluid-ounces.		Cubic centimetres.	Fluid-ounces.		Cubic centimetres.	Fluid-ounces.		Cubic centimetres.
1	=	30.00[1]	8	=	236.59	20	=	591.50
2	=	59.14	9	=	266.16	22	=	650.62
3	=	89.00	10	=	295.73	24	=	710.00
4	=	118.29	12	=	355.00	28	=	828.26
5	=	148.00	14	=	414.00	32	=	946.35
6	=	177.42	16	=	473.17	$33\frac{814}{100}$	=	1000.00
7	=	207.00	18	=	532.32	128	=	3785.43

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[1] More accurately, 29.57 c.c.

APPROXIMATE MEASURES.

One minim varies from one to two drops.[1]
1 fluidrachm = (about) 1 teaspoonful.
2 fluidrachms = " 1 dessertspoonful.
½ fluidounce = " 1 tablespoonful.
2 fluidounces = " 1 wineglassful.
4 fluidounces = " 1 teacupful.

HOUSEHOLD MEASURES.

4 teaspoonsful of liquid = 1 tablespoonful.
1 pint of liquid = 1 pound.
2 gills of liquid = 1 cup.
2 rounded tablespoonsful of flour = 1 ounce.
1 tablespoonful of butter = 1 ounce.
2 cups of granulated sugar = 1 pound.
2½ cups of powdered sugar = 1 pound.

ANTISEPTIC SOLUTIONS[2] (E. Q. THORNTON, M. D.).

Drug.	Commercial form.	Solution.	Strength.	Per cent.
Boric Acid	Powder.	Two tablespoonsful to a pint.	1 : 33	3
Calcium Chlorid . . .	Masses.	Two teaspoonsful to a pint.	1 ; 50	2
Carbolic Acid	Liquid.	Six teaspoonsful to a pint.	1 : 20	5
Corrosive Chlorid of Mercury (corrosive sublimate)	Crystals.	Seven and a half grains to a pint.	1 : 1000	0.1
Creolin	Liquid.	Two and a half teaspoonsful to a pint.	1 : 50	2
Lysol	Liquid.	Two and a half teaspoonsful to a pint.	1 : 50	2
Potassium Permanganate	Crystals.	Half a teaspoonful to a pint.	1 : 250	0.4
Solution of Hydrogen Dioxid	Liquid.	Eight tablespoonsful to a pint.	1 : 4	25
Thymol	Crystals.	Five grains to a pint.	1 : 1500	.07
Zinc Chlorid	Crystals.	Two teaspoonsful to a pint.	1 : 50	2

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[1] A *drop* is popularly, although erroneously, supposed to be a *minim*. True, there are 60 drops in a fluidrachm of water, but this is the case with only a few liquid medicines. The size of a drop depends on the *shape* of the vessel from which it is being dropped and on the *adhesiveness* of the fluid dropped; consequently, a drop is a very indefinite quantity. Tinctures, spirits, and other alcoholic fluids drop from *120 to 150 drops* to the fluidrachm, whereas thick syrups and a few other liquids drop less than *60 drops* to the fluidrachm (Thornton).

[2] These antiseptic solutions are of ordinary strengths, and are intended only for local application. They may be prepared with either hot or cold (preferably distilled) water. To *decrease* the strength of either solution the quantity of water must be *increased;* for example, if a 1 : 2000 corrosive-sublimate solution is required, the proportion would be 7½ gr. to the *quart.*

TABLE SHOWING THE NUMBER OF DROPS IN A FLUIDRACHM OF VARIOUS LIQUIDS; ALSO THE WEIGHT OF ONE FLUIDRACHM IN GRAINS.

Liquid.	Drops in f℥j (♏lx).	Weight of f℥j in grains.	Liquid.	Drops in f℥j (♏lx).	Weight of f℥j in grains.
Acetum Opii	90	61	Liquor Iodi Compos.	63	59
" Scillæ	68	57	" Potassæ	62	58
Acid, Acetic	108	58	" Zinci Chloridi	89	88
" Acetic, Dil.	68	56	Oleoresin Aspidii	130	52
" Carbolic	111	59	" Capsici	120	51
" Hydrochloric	70	65	" Cubebæ	123	52
" Hydrocyanic	60	54	Oleum Anisi	119	54
" Lactic	111	66	" Bergamii	130	46
" Nitric	102	77	" Cari	132	50
" Nitro-hydrochlor.	76	66	" Juniperi	148	49
" Phosphor. Dil.	59	57	" Limonis	129	47
" Sulphuric	128	101	" Ricini	77	51½
" Sulph. Aromat.	146	53	" Rosæ	132	47
" Sulph. Dil.	60	58½	" Terebinth.	136	45½
" Sulphurosum	59	55	" Tiglii	104	50
Æther Fortior	176	39	Spiritus Ætheris Comp.	148	45
Alcohol	146	44	" Ætheris Nitrosi	146	47
Aqua	60	55	" Camphoræ	143	47
" Destillata	60	53½	Syrupus Acaciæ	44	73
Bals. Peruvian	101	60	" Ferri Iod.	65	77
Bromin	250	165	" Scillæ	75	74
Chloroform, Pur.	250	80	" Comp.	102	70
Copaiba	110	51	" Senegæ	106	70
Creasote	122	56½	" Simplex	65	72
Extractum Belladon. Fl.	156	57	Tinctura Aconiti	146	46
" Buchu Fl.	150	47½	" Belladonnæ	137	53
" Digitalis Fl.	134	62	" Benzoini Comp.	148	48
" Ergotæ Fl.	133	60	" Cantharidis	131	51
" Ipecac. Fl.	120	60	" Digitalis	128	53
" Rhei Fl.	158	61	" Ferri Chlor.	150	53
" Senegæ Fl.	137	62	" Iodi.	148	47
" Valerianæ Fl.	150	49	" Opii	130	53
" Zingib. Fl.	142	48	" Opii Camph.	130	52
Glycerin	67	68	" Opii Deodor.	110	54
Hydrargyrum	150	760	Vinum Colchici Rad.	107	53
Liquor Acidi Arsenosi	57	55	" Colchici Sem.	111	54
" Ferri Chloridi	71	72	" Opii	100	55

LIST OF HYPODERMATIC TABLETS.

Aconitin (crystals)	gr. $\frac{1}{120}$.
Apomorphin muriate	gr. $\frac{1}{10}$.
Atropin sulphate	gr. $\frac{1}{60}$.
Atropin sulphate	gr. $\frac{1}{100}$.
Cocain hydrochlorate	gr. $\frac{1}{4}$.
Conin hydrobromate	gr. $\frac{1}{8}$.
Colchicin	gr. $\frac{1}{30}$.
Corrosive sub. and urea	gr. $\frac{1}{25}$.
Digitalin (soluble)	gr. $\frac{1}{100}$.
Gelsemin muriate	gr. $\frac{1}{30}$.
Hyoscin hydrobromate	gr. $\frac{1}{100}$.
Hyoscyamin	gr. $\frac{1}{60}$.
Morphin sulphate	gr. $\frac{1}{4}$.
Morphin sulphate	gr. $\frac{1}{8}$.
Morphin and atropin, No. 1.	
Morphin Sulph.	gr. $\frac{1}{8}$.
Atropin Sulph.	gr. $\frac{1}{200}$.
Morphin and atropin, No. 2.	
Morphin Sulph.	gr. $\frac{1}{4}$.
Atropin Sulph.	gr. $\frac{1}{150}$.
Picrotoxin	gr. $\frac{1}{60}$.
Pilocarpin hydrochlor.	gr. $\frac{1}{6}$.
Pilocarpin nitrate	gr. $\frac{1}{3}$.
Physostigmin sulph.	gr. $\frac{1}{100}$.
Sodium arsenate	gr. $\frac{1}{10}$.
Strychnin sulphate	gr. $\frac{1}{60}$.
Strychnin sulphate	gr. $\frac{1}{100}$.

Tablets for hypodermatic use are prepared by prominent manufacturers, each tablet containing one dose. They may readily be dissolved in a teaspoon at the bedside, and are very convenient for the pocket, if put up in a case with a good hypodermic syringe.

TABLE FOR CALCULATING THE DATE OF CONFINEMENT.

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oct.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	Nov.
Feb.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				
Nov.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5				Dec.
Mar.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Dec.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	Jan.
April.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Jan.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4		Feb.
May.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Feb.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	Mar.
June.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Mar.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		April.
July.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
April.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	May.
Aug.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
May.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	June.
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
June.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7		July.
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
July.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	Aug.
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Aug.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		Sept.
Dec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Sept.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	Oct.

Supposing the upper figure in each pair of horizontal lines to represent the first day of the last menstrual period, the figure beneath it, with the month designated in the margin, will show the probable date of confinement.

IV. ABBREVIATIONS.

āā., *ana*, equal parts of each.
A. c., *ante cibum*, before meals.
Add., *adde*, add to it.
Ad. lib., *ad libitum*, as you please.
Alt. dieb., *alterna diebus*, every other day.
Alt. hor., *alternâ horis*, every other hour.
Alt. noc., *alternâ nocte*, every other night.
Ante cib., *ante cibum*, before meals.
Applic., *applicatur*, apply.
Aq., *aqua*, water.
Aq. font., *aqua fontana*, spring water.
Aq. bull., *aqua bulliens*, boiling water.
Aq. dest., *aqua destillata*, distilled water.
Aq. marin., *aqua marina*, sea-water.
Aq. pluvial., *aqua pluvialis*, rain-water.
Aq. pur., *aqua pura*, pure water.
Bis hor, or *bis horis*, every two hours.
Bis ind., *bis in dies*, twice a day.
Bull., *bulliat*, let it boil.
C. or Cong., *congius*, a gallon.
c. c., cubic centimetre.
Cap., *capiat*, let him take.
Cent., centigrade.
Cochleat., *cochleatim*, by spoonfuls.
Cochl., *cochleare*, spoonful.
Coch. mag., *cochlear magnus*, a tablespoon.
Coch. med., *cochlear medium*, a dessertspoon.
Coch. parv., *cochlear parvum*, a teaspoon.
Comp., *compositus*, compound.
Conf., *confectio*, a confection.
Cort., *cortex*, bark.
Cuj., *cujus*, of which.
Decoct. hord., *decoctum hordei*, barley-water.
Decub., *decubitus* (a bed), lying down.
Destil., *destilla*, distil.
Det., *detur*, let it be given.
Dil., *dilutus*, dilute.
Dim., *dimidius*, one-half.
Div., *divide*.
Div. in p. æq., *dividatur in partes æquales*, divide into equal parts.
Drachm., *drachma*, a drachm.
Duo., *duo*, two.
Emp., *emplastrum*, a plaster.
Enem., enema.
Extr., *extractum*, extract.
F., Fahrenheit.
F. mist., *fiat mistura*, make a mixture.
Far., faradic.
Fe., *ferrum*, iron.
Filt., *filtra*, filter.
F. pil., *fiat pilula*, make a pill.
Fot., *fotus*, a fomentation.
Freq., *frequenter*, frequently.
Fl., or f., *fluidus*, fluid.
Ft., *fiat*, let there be made.
Fʒ, *fluidrachma*, fluidrachm.
F℥, *fluiduncia*, fluidounce.
Garg., *gargarisma*, a gargle.
Gm., gramme.
Gossyp., *gossypium*, cotton-wool.
Gr., *granum*, a grain, or *grana*, grains.
Gtt., *gutta*, a drop, or *guttæ*, drops.
Guttat., *guttatim*, by drops.
Hg., *hydrargyrum*, mercury.

Hirud., *hirudines*, leeches.
Hor. decub., *hora decubitûs*, at bedtime.
Ind., *in dies*, daily.
Inf., *infusum*, an infusion.
Inject., *injectio*, an injection.
Lat. dol., *lateri dolenti*, to the affected side.
L., litre.
Lb., *libra*, a pound.
Lib. or lbs., *libræ*, pounds.
Lim., *limones*, lemons.
Liq., *liquor*.
Lot., *lotio*, a lotion.
M., *misce*, mix.
♏, *minimum*.
Mac., *macera*, macerate.
Man., *manipulus*, a handful.
Mass. pil., *massa pilularum*, pill-mass.
Mel., *mellita*, honey.
Mist., *mistura*, a mixture.
No., *numero*, in number.
Noct., *nocte*, at night.
O., *octarius*, a pint.
Ol., *oleum*, oil.
Ol. oliv., *oleum olivæ*, olive oil.
O. m., *omni mane*, every morning.
Ov., *ovum*, an egg.
Oz., *uncia*, ounce.
P. or Pug., *pugillus*, a pinch
P. c., *post cibum*, after meals.
Pil., *pilula*, a pill.
Pond., *pondere*, by weight.
Pt., pint.
P. R. N., *pro re natâ*, as occasion arises.
Pulv., *pulvis*, a powder.
Q. d., *quarter in die*, four times a day.
Q. P., *quantum placet*, as much as you please.
Q. S., *quantum sufficit*, as much as is sufficient.
Qt., quart.
Quotid., *quotidie*, every day.
Q. V., *quantum vis*, as much as you wish.
℞., *recipe*, take.
Rad., *radix*, root.
Rect., *rectificatus*, rectified.
S. or Sig., *signa*, write.
Scr., *scrupulum*, scruple.
Sem., *semen*, seed.
Sol., solution.
Spr., *spiritus*, spirit.
Sp. gr., specific gravity.
St., *stet*, let it stand.
SS. or s., *semissis*, a half.
Sum., *sumendus*, to be taken.
S. V. G., *spiritus vini gallici*, brandy.
S. V. R., *spiritus vini rectificatus*, alcohol.
S. F., *spiritus frumenti*, whiskey.
Syr., *syrupus*, syrup.
T., temperature.
T., *ter*, three times.
T. i. d., *ter in dies*, three times a day.
Tr., *tinctura*, tincture.
Troch., *trochisci*, lozenges.
Ung., *unguentum*, ointment.
W., weight.
ʒ, *drachma*, a drachm.
℥, *uncia*, an ounce.
℈, *scrupulum*, a scruple.
2 dis., every two hours.
3 tis., every three hours.
4 tis., every four hours.
6 tis., every six hours.

V. DOSE-LIST.

THE doses given in this list are for *adults*; for *children*, Dr. Young's rule will be found most convenient. Add 12 to the age, and divide the result by the age to get the denominator of the fraction, the numerator of which is 1. Thus, for a child four years old, $4+12=16\div 4=\frac{1}{4}$, the dose being one-fourth of that for an adult. Of ***powerful narcotics*** scarcely more than ***one-half*** this proportion should be used. Of ***mild cathartics*** two or even three times the proportion may be employed. For ***hypodermatic injection*** the dose should be ***one-half*** of that used by the mouth; by ***rectum*** the dose should be increased to ***five-fourths*** of that administered by the mouth.

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Acetanilid.	Acetanilidum.	Antifebrin.	2–8				
Acid:							
acetic, diluted.	Acidum aceticum dilutum.	. . .	. .	. .	$\frac{1}{2}$–1		
arsenous.	arsenosum.	White arsenic.	$\frac{1}{40}$–$\frac{1}{20}$				
benzoic.	benzoicum.	. . .	10–40				
boric.	boricum.	Boracic acid.	2–15				
carbolic.	carbolicum.	Phenol, Phenic acid, Phenylic alcohol.	. .	. .	. .	$\frac{1}{2}$–1	
citric.	citricum.	Lemon-juice.	5–15				
gallic.	gallicum.	. . .	2–40				
hydrochloric.	hydrochloricum.	Muriatic acid.	. .	. .	. .	. .	2–10
dilute.	dilutum.	Diluted muriatic acid.	. .	. .	. .	. .	5–30
hydrocyanic dilute.	hydrocyanicum dilutum.	Prussic acid.	. .	. .	. .	1–5	
lactic.	lacticum.	. . .	. .	. .	. .	10–60	
nitric.	nitricum.	Aqua fortis.	. .	. .	. .	2–5	
dilute.	dilutum.	. . .	. .	. .	. .	10–32	
nitrohydrochloric.	nitrohydrochloricum.	Nitromuriatic acid.	. .	. .	. .	1–3	
phosphoric, dilute.	phosphoricum dilutum.	. . .	. .	. .	. .	16–60	

salicylic.	salicylicum.	. . .	5–15			
sulphuric.	sulphuricum.	Oil of vitriol.	. .	. .	. .	1–2
aromatic.	aromaticum.	Elixir of vitriol.	. .	. .	. .	5–20
dilute.	dilutum.	. . .	. .	. .	. .	10–20
sulphurous.	sulphurosum.	. . .	. .	. .	. .	10–60
tannic.	tannicum.	. . .	2–10			
tartaric.	tartaricum.	. . .	5–20			
Aconite:	(*Aconitum napellus.**)	Monk's-hood, Wolf's-bane.				
extract of.	Extractum aconiti.	. . .	¼–¾			
fluid extract of.	Extractum aconiti fluidum.	. . .	. .	. .	. .	½–2
tincture of.	tinctura aconiti.	. . .	. .	. .	. .	1–5
Alcohol, absolute (99 : 1).	Alcohol absolutum.	. . .	½–1			
Aloe:	(*Aloe socotrina* or *Perryi.*)	. . .	2–10			
extract of.	Extractum aloes.	. . .	½–5			
tincture of.	Tinctura aloes.	. . .	. .	. .	½–2	
and myrrh, tincture of.	Tinctura aloes et myrrhæ.	. . .	. .	. .	½–2	
Ammonia:						
spirit of aromatic.	Spiritus ammoniæ aromaticus.	. . .	. .	. .	1–	–10
water of.	Aqua ammoniæ.	Hartshorne. .	. .	. .	. .	10–20
Ammonium:						
benzoate.	Ammonii benzoas.	. . .	10–30			
bromide.	bromidum.	. . .	10–60			
carbonate.	carbonas.	. . .	1–10			
chloride.	chloridum.	. . .	5–15			
iodide.	iodidum.	. . .	2–5			
valerianate.	valerianas.	. . .	10–15			
Amyl nitrate.	Amyl nitris.	. . .	. .	. .	. .	1–2
(by inhalation).	. . . .	. . .	. .	. .	. .	1–5

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* *Italicized* names in parentheses indicate, respectively, the *botanical* name of the drug.

V. DOSE-LIST.

THE doses given in this list are for *adults*; for *children*, Dr. Young's rule will be found most convenient. Add 12 to the age, and divide the result by the age to get the denominator of the fraction, the numerator of which is 1. Thus, for a child four years old, 4 + 12 = 16 ÷ 4 = $\frac{1}{4}$, the dose being one-fourth of that for an adult. Of ***powerful narcotics*** scarcely more than *one-half* this proportion should be used. Of ***mild cathartics*** two or even three times the proportion may be employed. For ***hypodermatic injection*** the dose should be *one-half* of that used by the mouth; by ***rectum*** the dose should be increased to *five-fourths* of that administered by the mouth.

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Acetanilid.	Acetanilidum.	Antifebrin.	2–8				
Acid:							
acetic, diluted.	Acidum aceticum dilutum.	. . .	. .	. .	$\frac{1}{2}$–1		
arsenous.	arsenosum.	White arsenic.	$\frac{1}{40}$–$\frac{1}{20}$				
benzoic.	benzoicum.	. . .	10–40				
boric.	boricum.	Boracic acid.	2–15				
carbolic.	carbolicum.	Phenol, Phenic acid, Phenylic alcohol.	. .	. .	. .	$\frac{1}{2}$–1	
citric.	citricum.	Lemon-juice.	5–15				
gallic.	gallicum.	. . .	2–40				
hydrochloric.	hydrochloricum.	Muriatic acid.	. .	. .	. .	. .	2–10
dilute.	dilutum.	Diluted muriatic acid.	. .	. .	. .	. .	5–30
hydrocyanic dilute.	hydrocyanicum dilutum.	Prussic acid.	. .	. .	. .	1–5	
lactic.	lacticum.	. . .	. .	. .	. .	10–60	
nitric.	nitricum.	Aqua fortis.	. .	. .	. .	2–5	
dilute.	dilutum.	. . .	. .	. .	. .	10–32	
nitrohydrochloric.	nitrohydrochloricum.	Nitromuriatic acid.	. .	. .	. .	1–3	
phosphoric, dilute.	phosphoricum dilutum.	. . .	. .	. .	. .	16–60	

salicylic.	salicylicum.	. . .	5–15			
sulphuric.	sulphuricum.	Oil of vitriol.	. .	. .	. .	1–2
aromatic.	aromaticum.	Elixir of vitriol.	. .	. .	. .	5–20
dilute.	dilutum.	. . .	. .	. .	. .	10–20
sulphurous.	sulphurosum.	. . .	. .	. .	. .	10–60
tannic.	tannicum.	. . .	2–10			
tartaric.	tartaricum.	. . .	5–20			
Aconite:	(*Aconitum napellus.**)	Monk's-hood, Wolf's-bane.				
extract of.	Extractum aconiti.	. . .	¼–¾			
fluid extract of.	Extractum aconiti fluidum.	. . .	. .	. .	. .	½–2
tincture of.	tinctura aconiti.	. . .	. .	. .	. .	1–5
Alcohol, absolute (99 : 1).	Alcohol absolutum.	. . .	½–1			
Aloe:	(*Aloe socotrina* or *Perryi.*)	. . .	2–10			
extract of.	Extractum aloes.	. . .	½–5			
tincture of.	Tinctura aloes.	. . .	. .	. .	½–2	
and myrrh, tincture of.	Tinctura aloes et myrrhæ.	. . .	. .	. .	½–2	
Ammonia:						
spirit of aromatic.	Spiritus ammoniæ aromaticus.	. . .	. .	. .	1–	–10
water of.	Aqua ammoniæ.	Hartshorne. .	. .	. .	. .	10–20
Ammonium:						
benzoate.	Ammonii benzoas.	. . .	10–30			
bromide.	bromidum.	. . .	10–60			
carbonate.	carbonas.	. . .	1–10			
chloride.	chloridum.	. . .	5–15			
iodide.	iodidum.	. . .	2–5			
valerianate.	valerianas.	. . .	10–15			
Amyl nitrate.	Amyl nitris.	. . .	. .	. .	. .	1–2
(by inhalation).	. . . .	. . .	. .	. .	. .	1–5

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* *Italicised* names in parentheses indicate, respectively, the *botanical* name of the drug.

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Anise:	(*Pimpinella anisum.*)						
oil of.	Oleum anisi.	. . .	. .	. .	. .	2–5	
spirit of.	Spiritus anisi.	. . .	. .	. .	1–2		
Antimonial powder.	Pulvis antimonialis.	James' powder.	3–10				
Antimony oxide.	Antimonii oxidum.	. . .	1–3				
sulphide.	sulphidum.	. . .	10–31				
sulphurated.	sulphuratum.	Kermes mineral.	1–5				
wine of.	Vinum antimonii.	. . .	. .	Emetic $\frac{1}{2}$–1	. .	Sed. and Expec. 10–30	
Antimony and potassium tartrate (as an expectorant)	Antimonii et potassii tartras.	Tartrated antimony.	$\frac{1}{30}$–$\frac{1}{10}$				
(as an emetic).	. . . .	Tartar emetic.	$\frac{1}{2}$–1				
Antipyrin.	Antipyrinum.	Phenozone.	5–20				
Antitoxin (for diphtheria).	. . . .	. . .	. .	. .	1$\frac{1}{4}$–2$\frac{1}{2}$		
Apomorphin hydrochlorate.	Apomorphinæ hydrochloras.	. . .	Emetic $\frac{1}{10}$–$\frac{1}{6}$ Expec. $\frac{1}{40}$–$\frac{1}{20}$				
Arnica:	(*Arnica montana.*)						
-flowers, fluid extract of.	Tinctura arnicæ florum.	. . .	. .	. .	. .	10–30	
-root, extract of.	Extractum arnicæ radicis.	. . .	3–5				
fluid extract of.	fluidum.	. . .	. .	. .	. .	5–10	
tincture.	Tinctura arnicæ radicis.	. . .	. .	. .	. .	10–30	
Aromatic powder.	Pulvis aromaticus.	. . .	10–31				
Arsenate of sodium, sol. of.	Liquor sodii arsenatis.	. . .	. .	. .	. .	1–5	
Arsenic, white.	Acidum arsenosum.	. . .	$\frac{1}{40}$–$\frac{1}{20}$				

Arsenic, Donovan's solution of.	Liquor arseni et hydrargyri iodidi.	Solution of arsenic and mercuric acid.	. .	. .	. .	1–3
Fowler's solution of.	potassii arsenitis.	Solution of potass. arsenite.	. .	. .	. .	1–5
Asafetida.	(*Ferula fœtida.*)	. . .	3–10			
emulsion of.	Emulsum asafœtida.	. . .	. .	. .	4–8	
tincture of.	Tinctura asafœtida.	. . .	. .	. .	$\frac{1}{2}$–1	
Atropin sulphate.	Atropinæ sulphas.	. . .	$\frac{1}{150}$–$\frac{1}{40}$			
Balsam of gurjun.	Oleum dipterocarpi.	Wood-oil.	. .	. .	. .	10–60
of tolu.	Balsamum tolutanum.	. . .	10–31			
Belladonna:	(*Atropa belladonna.*)					
-leaves, fluid extract of.	Extractum belladonnæ foliorum alcoholicum.	. . .	$\frac{1}{6}$–$\frac{1}{4}$			
tincture of.	Tinctura belladonnæ foliorum.	. . .	. .	. .	. .	5–16
-root, extract of.	Extractum belladonnæ radicis.	. . .	$\frac{1}{8}$–$\frac{1}{4}$			
fluid extract of.	fluidum.	. . .	. .	. .	. .	1–2
Benzanilid.	Benzanilidum.	. . .	3–10			
Benzoin, tincture of.	Tinctura benzoini.	Benzoyl-anilid.	. .	. .	. .	10–30
compound.	composita.	Friar's balsam.	. .	. .	. .	30–60
Bismuth:						
citrate.	Bismuthi citras.	. . .	2–5			
salicylate.	salicylas.	. . .	5–31			
subcarbonate.	subcarbonas.	. . .	10–62			
subnitrate.	subnitras.	. . .	10–62			
Blue mass (see *Mercury*).						
Brandy.	Spiritus vini gallici.	. . .	. .	$\frac{1}{2}$–1		
Brimstone (see *Sulphur*).						
Bromid of ammonium.	Ammonii bromidum.	. . .	10–60			
calcium.	Calcii bromidum.	. . .	5–31			

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Bromid of gold.	Auri bromidum.	. . .	$\frac{1}{8}$–$\frac{1}{2}$				
lithium.	Lithii bromidum.	. . .	10–47				
potassium.	Potassii bromidum.	. . .	5–60				
sodium.	Sodii bromidum.	. . .	5–60				
Bromoform.	Bromoformum.	. . .	. .	. .	. .	1–5	
Brucin.	Brucina.	. . .	$\frac{1}{60}$–$\frac{1}{20}$				
Bryonia:	(*Bryonia alba.*)						
tincture of.	Tinctura bryoniæ.	. . .	. .	. .	2–	–10	
Buchu, fluid extract of.	Extractum buchu fluidum.	. . .	. .	. .	$\frac{1}{2}$–1		
Cacoa butter.	Oleum theobromatis.	(Used as a base for suppositories.)					
Caffein.	Caffeina.	Thein.	$\frac{1}{2}$–2				
citrate of.	citrata.	. . .	1–5				
Calcium (lime):							
bromid.	Calcii bromidum.	. . .	5–31				
carbonate precipitated.	carbonas precipitas.	. . .	10–30				
chlorid.	chloridum.	. . .	2–15				
hypophosphite.	hypophosphis.	. . .	10–30				
lactophosphate, syrup.	Syrupus calcii lactophosphatis.	. . .	. .	. .	1–4		
phosphate.	Calcii phosphas.	. . .	15–30				
sulphate.	sulphas exsiccatus.	Plaster of Paris.	(Used for preparing bandages.)				
Calomel.	Hydrargyri chloridum-mite.	Mild mercurous chlorid.	$\frac{1}{20}$–10				
Calumba:	(*Jateorhisa palmata.*)						
fluid extract of.	Extractum calumbæ fluidum	. . .	. .	. .	. .	16–60	
tincture of.	Tinctura calumbæ.	. . .	. .	. .	$\frac{1}{2}$–2		

Camphor:	(*Cinnamomum camphora.*)					
monobromated.	Camphora monobromata.	. . .	1–5			
spirit of.	Spiritus camphoræ.	. . .	. .	. .	. .	5–30
water of.	Aqua camphoræ.	. . .	. .	. .	1–4	
Camphoric acid.	Acidum camphoricum.	. . .	20–60			
Canabis:						
Americana.	(*Apocynum cannabinum.*)	Canadian hemp.	5–31			
fluid extract of.	Extractum apocyni fluidum.	. . .	. .	. .	. .	5–32
Indica.	(*Cannabis sativa.*)	Indian hemp.				
fluid extract of.	Extractum cannabis indicæ fluidum.	. . .	. .	. .	. .	2–20
tincture of.	Tinctura cannabis indicæ.	. . .	. .	. .	–1	–16
Cantharides:	Cantharis.	Spanish flies.				
tincture of.	Tinctura cantharidis.	. . .	. .	. .	. .	1–5
Capsicum.	(*Capsicum fastigiatum.*)	Cayenne pepper, African pepper.	1–5			
fluid extract of.	Extractum capsici fluidum.	. . .	. .	. .	. .	1–3
oleoresin of.	Oleoresina capsici.	. . .	. .	. .	. .	¼–1
tincture of.	Tinctura capsici.	. . .	. .	. .	. .	10–30
Caraway, oil of.	Oleum cari.	. . .	. .	. .	. .	1–5
Cardamom:	(*Elettaria repens.*)					
compound tincture of.	Tinctura cardamom composita.	. . .	. .	. .	1–2	
tincture of.	Tinctura cardamomi.	. . .	. .	. .	1–2	
Carron oil.	(Used as a dressing for burns.)					
Cascara sagrada;	(*Rhamnus Purshiana.*)	Chittern bark, Sacred bark.				
extract of.	Extractum rhamni purshianæ.	. . .	1–7			
fluid extract of.	fluidum.	. . .	. .	. .	. .	16–30
Cascarilla.	(*Croton eluteria.*)	. . .	10–31			

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Castor oil.	Oleum ricini.	. . .	. .	1-	-1		
Catechu.	(*Acacia catechu.*)	. . .	10-31				
tincture compound.	Tinctura catechu composita.	. . .	. .	. .	½-2		
Cerium oxalate.	Cerii oxalas.	. . .	1-10				
Chalk mixture.	Mistura cretæ.	. . .	. .	. .	1-4		
powder, compound.	Pulvis cretæ compositus.	. . .	5-62				
prepared.	Creta præparata.	. . .	10-31				
Chamomile, oil of.	(*Anthemis nobilis.*)	. . .	. .	. .	. .	5-15	
Charcoal, animal, purified.	Carbo animalis purificatus ligni.	(Used as a deodorant and disinfectant. Internally for dyspepsia, given as tabloids.)					
Cherry-laurel water.	Aqua laurocerasi.	. . .	. .	. .	½-1	.	
Chloral hydrate.	Chloral.	. . .	5-31				
Chloralmid.	Chloralum formamidatum.	. . .	5-60				
Chlorid of lime.	Calx chlorinata.	. . .	3-5				
Chlorine-water.	Aqua chlori.	. . .	. .	. .	½-2		
Chloroform:							
spirit of.	Spiritus chloroformi.	. . .	. .	. .	. .	5-32	
Cimicifuga:	(*Cimicifuga racemosa.*)	Black snakeroot.					
fluid extract of.	Extract. cimicifugæ fluidum.	. . .	. .	. .	. .	16-30	
tincture of.	Tinctura cimicifugæ.	. . .	. .	. .	1-2		
Cinchona-bark:	(*Cinchona officinalis.*)	Quinin, Peruvian-bark.	Decoc. 10-60				
fluid extract of.	Extractum cinchonæ fluidum	. . .	. .	. .	. .	16-30	
extract of.	Extractum cinchonæ.	. . .	5-10				
tincture of.	Tinctura cinchonæ.	. . .	. .	. .	1-2		
Cinchonin sulphate.	Cinchoninæ sulphas.	. . .	5-15				

Cinnamon:	(*Cinnamomum.*)						
oil of.	Oleum cinnamomi.	. . .	. .	. .	. .	. .	1–5
spirit of.	Spiritus cinnamomi.	. . .	. .	. .	. .	. .	5–30
tincture of.	Tinctura cinnamomi.	. . .	. .	. .	½–1		
Cloves, oil of.	Oleum caryophylli.	. . .	. .	. .	. .	1–5	
Coca, fluid extract of.	Extractum cocæ fluidum.	. . .	. .	. .	1–	–20	
Cocain hydrochlorate.	Cocainæ hydrochloras.	. . .	¼–2				
Cocculus:	(*Anamirta paniculata.*)	Picrotoxin.	$\frac{1}{100}$–$\frac{1}{20}$				
fluid extract.	Extractum cocculi fluidum.	. . .	. .	. .	. .	1–3	
tincture of.	Tinctura cocculi.	. . .	. .	. .	. .	2–15	
Cocoa (cacao) butter.	Oleum theobromatis.	(Used as a base for suppositories.)					
Codein or codeia.	Codeina.	. . .	½–2				
Colchiceine.	Colchiceina.	. . .	$\frac{1}{64}$–$\frac{1}{32}$				
Cod-liver oil.	Oleum morrhuæ.	. . .	. .	1–	. .	–10	
Colchicum:	(*Colchicum autumnale.*)	Meadow saffron.					
-root.	Colchici radix.	. . .	2–8				
extract of.	Extractum colchici radicis.	. . .	½–2				
-seed.	Colchici semen.	. . .	2–8				
fluid extract of.	Extractum colchici seminis fluidum.	. . .	. .	. .	. .	. .	2–5
wine of.	Vinum colchici seminis.	. . .	. .	. .	. .	16–60	
Cologne-water.	Spiritus odoratus.	(A fragrant deodorizing scent.)					
Conium:	(*Conium maculatum.*)	Hemlock.					
fluid extract of.	Extractum conii fluidum.	. . .	. .	. .	. .	2–6	
Copper sulphate (emetic).	Cupri sulphas.	Bluestone, Blue vitriol.	3–5				
Corrosive sublimate.	Hydrargyri chloridum corrosivum.	Bichlorid of mercury.	$\frac{1}{32}$–$\frac{1}{16}$				
Creolin.	Creolinum.	(Antiseptic and deodorant, ½ to 2 per cent. solution.)					
Creosote.	Creosotum.	. . .	. .	. .	. .	1–10	
water.	Aqua creosoti.	. . .	. .	. .	1–4		

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Croton oil.	Oleum tiglii.	. . .	. .	. .	. .	1 ♏ diluted in 5 drops of oil.	
Cubeb:	(*Piper cubeba.*)						
fluid extract of.	Extractum cubebæ fluidum.	. . .	. .	. .	. .	10–60	
oil of.	Oleum cubebæ.	. . .	. .	. .	. .	5–16	
oleoresin of.	Oleoresina cubebæ.	. . .	. .	. .	. .	5–20	
powdered.	Pulvis cubebæ.	. . .	20–2 dr.				
tincture of.	Tinctura cubebæ.	. . .	. .	. .	½–4		
Digitalin.	Digitalinum.	. . .	$\frac{1}{64}$				
Digitalis:	(*Digitalis purpurea.*)	Foxglove.					
extract of.	Extractum digitalis.	. . .	$\frac{1}{6}$–$\frac{1}{4}$				
fluid extract of.	Extractum digitalis fluidum.	. . .	. .	. .	. .	. .	1–2
infusion of.	Infusum digitalis.	. . .	. .	. .	1–4		
tincture of.	Tinctura digitalis.	. . .	. .	. .	. .	. .	10–20
Donovan's solution.	Liquor arseni et hydrargyri iodidi.	. . .	. .	. .	1–3		
Dover's powder.	Pulvis ipecacuanhæ et opii.	. . .	5–10				
Distilled water.	Aqua destillata.	(A solvent.)					
Elaterin.	Elaterinum.	. . .	$\frac{1}{30}$–$\frac{1}{16}$				
Elaterium.	Elaterium.	. . .	$\frac{1}{6}$				
Ergot, extract of.	Extractum ergotæ.	Ergot of rye.	1–20				
fluid extract of.	fluidum.	. . .	. .	. .	½–1		
wine of.	Vinum ergotæ.	. . .	. .	. .	1–4		
Eserin.	. . .	. . .	$\frac{1}{60}$–$\frac{1}{20}$				
Æther, acetic	Æther aceticus.	. . .	. .	. .	. .	5–30	
spirit of.	Spiritus æther.	Hoffmann's anodyne.	. .	. .	1–3		

Ether, nitrous spirit of.	Spiritus ætheris nitrosi.	Sweet spirits of nitre.	. .	. .	. .	10–60	
Ethyl bromid.	Æthyl bromidum.	(Used as a general anesthetic.)					
Eucalyptol.	Eucalyptol.	. . .	. .	. .	. .	3–10	
Eucalyptus:	(*Eucalyptus globulus*).						
fluid extract.	Extractum eucalypti fluidum	. . .	. .	. .	. .	10–60	
oil of.	Oleum eucalypti.	. . .	. .	. .	. .	. .	5–16
Exalgin.	. . .	. . .	5–10				
Extracts (SOLID):							
aloes.	Extractum aloes.	. . .	$\frac{1}{2}$–5				
arnica-root.	arnicæ radicis.	. . .	3–5				
belladonna-leaves (alcoholic).	belladonnæ foliorum alcoholicum.	. . .	$\frac{1}{6}$–$\frac{1}{4}$				
belladonna-root.	belladonna radicis.	. . .	$\frac{1}{8}$–$\frac{1}{4}$				
cimicifuga.	cimicifugæ.	. . .	1–5				
cinchona.	cinchonæ.	. . .	5–10				
colchicum-root.	colchici radicis.	. . .	$\frac{1}{2}$–2				
digitalis.	digitalis.	. . .	$\frac{1}{6}$–$\frac{1}{4}$				
ergot.	ergotæ.	. . .	1–20				
gentian.	gentianæ.	. . .	1–10				
hematoxylon.	hæmatoxyli.	. . .	8–30				
hyoscyamus.	hyoscyami.	. . .	$\frac{1}{2}$–3				
iris.	iridis.	. . .	2–4				
jalap.	jalapæ.	. . .	5–10				
nux vomica.	nucis vomicæ.	. . .	$\frac{1}{6}$–$\frac{1}{2}$				
of cascara sagrada.	rhamni purshianæ.	. . .	1–7				
opium.	opii.	. . .	$\frac{1}{4}$–1				
physostigma.	physostigmatis.	. . .	$\frac{1}{16}$–$\frac{1}{8}$				
quassia.	quassiæ.	. . .	1–3				
rhubarb.	rhei.	. . .	5–10				
stramonium-seed.	stramonii seminis.	. . .	$\frac{1}{6}$–$\frac{1}{2}$				

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Extracts (FLUID):							
aconite.	Extractum aconiti fluidum.	. . .	. .	. .	. .	½–2	
arnica.	arnicæ radicis "	. . .	. .	. .	. .	5–10	
belladonna-root.	belladonnæ radicis "	. . .	. .	. .	. .	1–2	
buchu.	buchu fluidum.	. . .	. .	. .	½–1		
calumba.	calumbæ "	. . .	. .	. .	. .	16–60	
cocculus.	cocculi "	. . .	. .	. .	. .	1–3	
indian hemp.	cannabis indicæ "	. . .	. .	. .	. .	2–20	
Canadian hemp.	apocyni "	. . .	. .	. .	. .	5–32	
capsicum.	capsicum "	. . .	. .	. .	. .	1–2	
cinchona.	cinchonæ "	. . .	. .	. .	. .	16–30	
coca.	cocæ "	. . .	. .	. .	1–	–20	
colchicum-seed.	colchici seminis "	. . .	. .	. .	. .	2–5	
conium.	conii "	. . .	. .	. .	. .	2–6	
cubeb.	cubebæ "	. . .	. .	. .	. .	10–60	
digitalis.	digitalis "	. . .	. .	. .	. .	1–2	
ergot.	ergotæ "	. . .	. .	. .	½–1		
eucalyptus.	eucalypti "	. . .	. .	. .	. .	10–60	
gelsemium.	gelsemii "	. . .	. .	. .	. .	2–10	
gentian.	gentianæ "	. . .	. .	. .	½–1		
geranium.	geranii "	. . .	. .	. .	½–1		
ginger.	zingiberis "	. . .	. .	. .	. .	10–30	
hamamelis.	hamamelidis "	. . .	. .	. .	½–1		
hematoxylon.	hæmatoxyli "	. . .	. .	. .	1–4		
hydrastis.	hydrastis "	. . .	. .	. .	½–1		
ipecac (emetic).	ipecacuanhæ "	. . .	. .	. .	. .	16–32	

ipecac (expectorant).	" "	. . .	. .	. .	. .	1–2
iris.	iridis "	. . .	. .	. .	. .	5–10
lobelia (emetic).	lobeliæ "	. . .	. .	. .	1–	–16
(expectorant).	" "	. . .	. .	. .	. .	1–5
lupulin.	lupulini "	. . .	. .	. .	. .	10–16
nux vomica.	nucis vomicæ "	. . .	. .	. .	. .	1–5
pilocarpus.	pilocarpi "	. . .	. .	. .	½–1	
podophyllum.	podophylli "	. . .	. .	. .	. .	2–20
pulsatilla.	pulsatillæ "	. . .	. .	. .	. .	1–5
quassia.	quassiæ "	. . .	. .	. .	. .	5–10
rhamnus purshiana.	rhamni purshianæ"	. . .	. .	. .	. .	16–30
rhubarb.	rhei "	. . .	. .	. .	. .	10–30
sarsaparilla, compound.	sarsaparillæ compositum.	. . .	. .	. .	½–1	
savine.	sabinæ fluidum.	. . .	. .	. .	. .	5–16
scoparius.	scoparii "	. . .	. .	. .	. .	5–20
senega.	senegæ "	. . .	. .	. .	. .	10–20
senna.	sennæ "	. . .	. .	. .	1–2	
squill.	scillæ "	. . .	. .	. .	. .	1–5
stillingia.	stillingiæ "	. . .	. .	. .	. .	10–60
valerian.	valerianæ "	. . .	. .	. .	½–1	
veratrum viride.	veratri viridis "	. . .	. .	. .	. .	1–3
viburnum.	viburni prunifolii "	. . .	. .	. .	1–2	
wild cherry.	pruni virginiana "	. . .	. .	. .	½–1	
Flaxseed.	(*Linum usitatissimum.*)					
Gaultheria, oil of.	Oleum gaultheriæ.	Oil of wintergreen.	. .	. .	. .	10–32
Gelsemium:	(*Gelsemium sempervirens.*)	Yellow jasmine.				
fluid extract of.	Extractum gelsemii fluidum	. . .	. .	. .	. .	2–10
tincture of.	Tinctura gelsemii.	. . .	. .	. .	. .	10–20
Gentian:	(*Gentiana lutea,*)					
extract of.	Extractum gentianæ.	. . .	1–10			
fluid.	fluidum.	. . .	. .	. .	½–1	

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Gentian (continued):							
infusion, compound.	Infusum gentianæ compositum.	. . .	. .	. .	1–8		
tincture of, compound.	Tinctura gentianæ composita.	. . .	. .	. .	½–1		
Geranium, fluid extract.	Extractum geranii fluidum.	Crane's-bill.	. .	. .	½–1		
Gin.	Spiritus juniperi compositus.	. . .	. .	2–	–1		
Ginger:	(*Zingiber officinale.*)						
fluid extract of.	Extract. zingiberis fluidum.	. . .	. .	. .	. .	10–30	
oleoresin of.	Oleoresina zingiberis.	. . .	. .	. .	. .	½–1	
tincture of.	Tinctura zingiberis.	. . .	. .	. .	1–	–20	
Glycerin.	Glycerinum.	. . .	. .	. .	. .	1–2	
Glycyrrhiza.	Glycyrrhiza.	Licorice-root.	. .	. .	1–4		
Guaiac:	(*Guaiacum officinale.*)	Lignum vitæ. Guaiacum-wood.	5–30				
resin of.	Guaiaci resina.						
tincture of.	Tinctura guaiaci.	. . .	. .	. .	½–1		
ammoniated.	ammoniata.	. . .	. .	. .	½–1		
Gum arabic.	(*Acacia senegal.*)						
Guaiacol.	Guaiacolum.	. . .	. .	. .	. .	5–10	
Green soap (see *Soap*).							
Hematoxylon:	(*Hæmatoxylon campechianum.*)	Logwood.					
extract of.	Extractum hæmatoxyli.	. . .	5–30				
fluid.	fluidum.	. . .	. .	. .	1–4		
Hamamelis:	*Hamamelis virginiana.*)	Witch-hazel.					

fluid extract.	Extract. hamamelidis fluid.	. . .	. .	. .	½–1	
Hellebore:	(*Veratrum viride.*)					
extract, fluid.	Extractum veratri viridis fluidum.	. . .	. .	. .	. .	1–3
tincture of.	Tinctura veratri viridis.	. . .	. .	. .	. .	1–8
Honey.	Mel.	. . .	. .	. .	1–2	
clarified.	despumatum.	. . .	. .	. .	1–2	
Hops:	(*Humulus lupulus.*)					
fluid.	Extractum lupulini fluidum.	. . .	. .	. .	. .	10–16
tincture of.	Tinctura humuli.	. . .	. .	½–3		
Hydrargyrum (see *Mercury*).						
Hydrastis:	(*Hydrastis canadensis.*)	Golden seal.				
extract, fluid.	Extract. hydrastis fluidum.	. . .	. .	. .	½–1	
tincture of.	Tinctura hydrastis.	. . .	. .	. .	½–2	
Hyoscyamus:	(*Hyoscyamus niger.*)	Henbane.				
extract of.	Extractum hyoscyami.	. . .	½–3			
Hypnal.	Hypnal.	Monochloral-antipyrin.	5–20			
Hypnone.	Hypnone.	Acetophonene.	. .	. .	. .	1–5
Hypophosphites, syrup of.	Syrupus hypophosphitum.	. . .	. .	. .	1–4	
with iron, syrup of.	" " cum ferro.	. . .	. .	. .	1–4	
Ichthyol.	Ichthyol.	. . .	1–10			
Ignatia:	(*Strychnos ignatii.*)	St. Ignatius' bean.				
tincture of.	Tincture ignatiæ.	. . .	. .	. .	. .	2–10
Iodin, solution, compound.	Liquor iodi compositus.	Lugol's solution.	. .	. .	. .	5–16
tincture of.	Tinctura iodi.	. . .	. .	. .	. .	3–5
Iodoform.	Iodoformum.	. . .	1–5			
Iodol.	Iodol.	Tetraiodopyrrol.	5–20			
Ipecacuanha:	(*Cephaëlis ipecacuanhæ.*)	Ipecac.				
fluid extract of.	Extractum ipecacuanhæ fluidum.	. . .	. .	. .	. .	Emetic 16–32

English name.	Latin official name.	Synonym or popular name.	Dose. Gr.	Dose. fℨ	Dose. fʒ	Dose. ♏	Dose. Drops.
Lemon-peel.	Limonis cortex.	. . .	1 –5				
oil of.	Oleum limonis cortex.	. . .	. .	. .	. .	1–5	
Lysol.	(Antiseptic, 1–3 per cent. sol.)						
Magnesia.	Magnesia.	Calcined magnesia. Husband's magnesia.	31–62				
Magnesium carbonate.	Magnesii carbonas.	. . .	10–15				
citrate of.	citris effervescens.	. . .	31–93				
sulphate.	sulphas.	Epsom salt.	. .	. .	2–8		
Male fern, oleoresin of.	Oleoresina aspidii.	. . .	. .	. .	$\frac{1}{2}$–1		
Malt, extract of.	. .	. . .	. .	. .	1–2		
Manganese sulphate.	Mangani sulphas.	. . .	2–5				
Menthol.	Menthol.	Peppermint camphor.	$\frac{1}{2}$–1				
Mercury:	Hydrargyrum.	Quicksilver.					
corrosive chlorid of.	Hydrargyri chloridum corrosivum.	Corrosive sublimate, Bichlorid of mercury.	$\frac{1}{32}$–$\frac{1}{16}$				
cyanid.	cyanidum.	. . .	$\frac{1}{30}$–$\frac{1}{20}$				
mass of.	Massa hydrargyri.	Blue mass, Blue pill.	2–20				
mild chlorid of.	Hydrargyri chloridum mite.	Calomel.	$\frac{1}{20}$–10				
Morphia sulphate.	Morphinæ sulphas.	Morphin.	$\frac{1}{8}$–$\frac{1}{2}$				
Musk.	Moschus.	. . .	5–10				
tincture of.	Tinctura moschi.	. . .	. .	. .	1–4		
Myrrh.	(*Commiphora myrrha.*)	. . .	1–5				
tincture of.	Tinctura myrrhæ.	. . .	. .	. .	. .	5–16	
Naphthalin.	Naphtalinum.	Naphtalene. Coal-tar camphor.	$\frac{1}{8}$–10				

Jaborandi:	(*Pilocarpus jaborandi.*)					
fluid extract of.	Extract. pilocarpi fluidum.	. . .	. .	. .	$\frac{1}{2}$–1	
infusion of.	Infusum pilocarpi.	. . .	. .	. .	$\frac{1}{2}$–3	
Jalap:	(*Ipomœa jalapa.*)					
compound powder of.	Pulvis jalapæ compositus.	. . .	15–40			
extract of.	Extractum jalapæ.	. . .	5–10			
Kino:	(*Pterocarpus marsupium.*)	. . .	5–10			
tincture of.	Tinctura kino.	. . .	. .	. .	1–3	
Lactucarium.	(*Lactuca virosa.*)	Lettuce opium.	15–30			
syrup of.	Syrupus lactucarii.	. . .	. .	. .	1–3	
Lard, benzoinated.	Adeps benzoinatus.	(Ointment base.)				
Lavender, oil of.	Oleum lavandulæ.	. . .	. .	. .	. .	1–5
Lead and laudanum.	. . .	. . .	(Used externally.)			
acetate of.	Plumbi acetas.	Sugar of lead.	1–5 (pill)			
Lime, solution of.	Calx.					
syrup of.	Syrupus calcis.	. . .	. .	. .	$\frac{1}{2}$–1	
Licorice powder, compound.	Pulvis glycyrrhizæ compositus.	. . .	31–123			
compound mixture of.	Mistura glycyrrhizæ composita.	Brown mixture.	. .	. .	1–4	
Lithium:		. . .				
benzoate.	Lithii benzoas.	. . .	5–30			
bromid.	bromidum.	. . .	10–47			
carbonate.	carbonas.	. . .	2–10			
citrate.	citras.	. . .	5–20			
salicylate.	salicylas.	. . .	10–31			
Lobelia:	(*Lobelia inflata.*)					
fluid extract of (emetic).	Extractum lobeliæ fluidum.	Indian tobacco.	. .	. .	. .	16–60
(expectorant).	. . .	. . .	. .	. .	. .	1–5
tincture of.	Tinctura lobeliæ.	. . .	. .	. .	Emetic 1–2	Expec. 5–32

English name.	Latin official name.	Synonym or popular name.	Dose. Gr.	Dose. f℥	Dose. fʒ	Dose. ♏	Dose. Drops.
Lemon-peel.	Limonis cortex.	. . .	1–5				
oil of.	Oleum limonis cortex.	. . .	. .	. .	. .	1–5	
Lysol.	(Antiseptic, 1–3 per cent. sol.)						
Magnesia.	Magnesia.	Calcined magnesia. Husband's magnesia.	31–62				
Magnesium carbonate.	Magnesii carbonas.	. . .	10–15				
citrate of.	citris effervescens.	. . .	31–93				
sulphate.	sulphas.	Epsom salt.	. .	. .	2–8		
Male fern, oleoresin of.	Oleoresina aspidii.	. . .	. .	. .	½–1		
Malt, extract of.	. . .	. . .	. .	. .	1–2		
Manganese sulphate.	Mangani sulphas.	. . .	2–5				
Menthol.	Menthol.	Peppermint camphor.	½–1				
Mercury:	Hydrargyrum.	Quicksilver.					
corrosive chlorid of.	Hydrargyri chloridum corrosivum.	Corrosive sublimate, Bichlorid of mercury.	1/32–1/16				
cyanid.	cyanidum.	. . .	1/30–1/20				
mass of.	Massa hydrargyri.	Blue mass, Blue pill.	2–20				
mild chlorid of.	Hydrargyri chloridum mite.	Calomel.	1/20–10				
Morphia sulphate.	Morphinæ sulphas.	Morphin.	⅛–½				
Musk.	Moschus.	. . .	5–10				
tincture of.	Tinctura moschi.	. . .	. .	. .	1–4		
Myrrh.	(*Commiphora myrrha.*)	. . .	1–5				
tincture of.	Tinctura myrrhæ.	. . .	. .	. .	. .	5–16	
Naphthalin.	Naphtalinum.	Naphtalene. Coal-tar camphor.	⅙–10				

Naphtol.	Naphtol.	Beta-naphtol.	1–5				
Nitroglycerin.	Glonoinum.	. . .	$\frac{1}{100}$–$\frac{1}{50}$				
Nux vomica:	(*Strychnos nux-vomica.*)						
extract of.	Extractum nucis vomicæ.	. . .	$\frac{1}{6}$–$\frac{1}{2}$				
fluid.	fluidum.	. . .	. .	. .	. .	. .	1–5
tincture of.	Tinctura nucis vomicæ.	. . .	. .	. .	. .	. .	5–20
Olive oil.	Oleum olivæ.	Sweet oil.	. .	2–	. .	–15	
Opium:	(*Papaver somniferum.*)						
extract of.	Extractum opii.	. . .	$\frac{1}{4}$–1				
powder.	Opii pulvis.	. . .	$\frac{1}{2}$–2				
tincture of.	Tinctura opii.	Laudanum.	. .	. .	. .	. .	5–20
camphorated	Tinctura opii camphorata.	Paregoric.	. .	. .	$\frac{1}{2}$–4		
deodorized.	deodorati.	. . .	. .	. .	. .	. .	5–20
wine of,	Vinum opii.	. . .	. .	. .	. .	. .	5–20
(see *Dover's powder.*)							
Pancreatin.	Pancreatinum.	. . .	10–30				
Paraldehyd.	Paraldehydum.	. . .	. .	. .	$\frac{1}{2}$–1		
Paregoric (see *Opium*).							
Pearson's solution.	Liquor sodii arsenatis.	Sol. of sod. arsenate.	. .	. .	. .	1–5	
Peppermint:	(*Mentha piperita.*)						
oil of.	Oleum menthæ piperitæ.	. . .	. .	. .	. .	1–5	
spirit of.	Spiritus menthæ piperitæ.	. . .	. .	. .	. .	10–20	
Pepsin (pure).	Pepsinum.	. . .	10–60				
saccharated.	Pepsinum saccharatum.	. . .	20–30				
Phenacetin.	Phenacetinum.	. . .	10–15				
Phosphorated oil.	Oleum phosphoratum.	. . .	. .	. .	. .	1–2	
Phosphorus.	Phosphorus.	. . .	$\frac{1}{100}$–$\frac{1}{50}$				
Physostigma:	(*Physostigma venonosum.*)	Calabar bean.					
extract of.	Extractum physostigmatis.	. . .	$\frac{1}{16}$–$\frac{1}{8}$				
tincture of.	Tinctura physostigmatis.	. . .	. .	. .	. .	5–20	
Physostigmin salicylate.	Physostigminæ salicylas.	Eserin salicylate.	$\frac{1}{150}$–$\frac{1}{100}$				

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Physostigmin sulphate.	Physostigminæ sulphas.	Eserin sulphate.	$\frac{1}{130}$–$\frac{1}{100}$				
Picrotoxin.	Picrotoxinum.	. . .	$\frac{1}{64}$–$\frac{1}{30}$				
Pilocarpin hydrochlorate.	Pilocarpinæ hydrochloras.	Jaborandi.	$\frac{1}{8}$–$\frac{1}{2}$				
fluid extract.	Extract. pilocarpi fluidum.	. . .	. .	. .	$\frac{1}{2}$–1		
Podophyllum:	(*Podophyllum peltatum.*)	May-apple.					
fluid extract of.	Extract. podophylli fluidum.	. . .	. .	. .	. .	2–20	
Port-wine.	Vinum portense.	. . .	(As required.)				
Potassium:	Potassii.						
acetate.	acetas ($\frac{1}{2}$–1 dr.).						
bitartrate.	bitartras.	Cream of tartar.	10–60				
bicarbonate.	bicarbonas.	. . .	10–60				
carbonate.	carbonas.	. . .	5–10				
chlorate.	chloras.	. .	2–10				
citrate.	citras.	. . .	10–31				
cyanid.	cyanidum.	. . .	$\frac{1}{20}$–$\frac{1}{10}$				
iodid.	iodidum.	. . .	5–31				
permanganate.	permanganas.	. . .	$\frac{1}{2}$–3				
sulphate.	sulphas.	. . .	10–60				
Potassium and sod'm tartrate.	Potassii et sodii tartras.	Rochelle salt.	. .	. .	1–4		
Pulsatilla, fluid extract.	Extract. pulsatillæ fluidum.	. . .	. .	. .	. .	1–5	
Quassia:	(*Picræna excelsa.*)	. . .					
extract of.	Extractum quassiæ.	. . .	1–3				
fluid extract of.	fluidum.	. . .	. .	. .	. .	5–10	
tincture of.	Tinctura quassiæ.	. . .	. .	. .	$\frac{1}{2}$–1		
Quinin (see *Cinchona bark*).							
Red wine.	Vinum rubrum.		(As required.)				

Resorcin.	Resorcinum.	. . .	1–10				
Rhubarb (root):	(*Rheum officinale.*)	. . .	10–30				
extract of.	Extractum rhei.	. . .	5–10				
fluid.	fluidum.	. . .	. .	. .	. .	10–30	
powder of, compound.	Pulvis rhei compositus.	. . .	31–62				
syrup of, aromatic.	Syrupus rhei aromaticus.	. . .	. .	. .	½–4		
tincture of.	Tinctura rhei.	. . .	. .	. .	1–2		
aromatic.	aromatica.	. . .	. .	. .	½–1		
Rhubarb and soda, mixture.	Mistura rhei et sodæ.	. . .	. .	. .	½–2		
Sabina, fluid extract.	Extractum sabinæ fluidum.	Extract of savine.	. .	. .	. .	5–16	
Saccharin.	Saccharinum.	Glucidum.	1–10				
Salicin.	Salicinum.	. . .	10–30				
Salol.	Salol.	. . .	5–31				
Salvia infusion.	Salvia.	Sage.	. .	½–1			
Sandalwood, oil of.	Oleum santali.	White sandalwood.	. .	. .	. .	5–20	
Santonin.	Santoninum.	Wormseed.	½–2				
Sarsaparilla:	(*Smilax officinalis.*)						
fluid extract, compound.	Extractum sarsaparillæ fluidum compositum.	. . .	. .	. .	½–1		
syrup of, compound.	Syrupus sarsaparillæ compositus.	. . .	. .	. .	1–8		
Sassafras, fluid extract.	. . . .	. . .	. .	. .	½–2		
Savine, oil of.	Oleum sabinæ.	. . .	. .	. .	. .	. .	5–10
Scoparius, fluid extract.	Extractum scoparii fluidum.	Broom.	. .	. .	. .	5–20	
Senega:	(*Polygala senega.*)						
fluid extract.	Extractum senegæ fluidum.	. . .	. .	. .	. .	. .	10–20
syrup.	Syrupus senegæ.	. . .	. .	. .	½–2		
Senna:	(*Cassia scutifolia.*)						
fluid extract.	Extractum sennæ fluidum.	. . .	. .	. .	1–2		
infusion of, compound.	Infusum sennæ compositum.	Black draught.	1–2 oz.				
syrup of.	Syrupus sennæ.	. . .	. .	. .	½–2		

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Sherry wine.	Vinum xericum.	. . .	. .	2			
Silver:							
iodid.	Argenti iodidum.	. . .	$\frac{1}{4}$–2				
nitrate.	nitras.	Lunar caustic.	$\frac{1}{6}$–$\frac{1}{2}$				
oxid.	oxidum.	. . .	$\frac{1}{2}$–1				
Slippery elm.	(*Mucilago ulmi.*)	. . .	(Dose, any quantity.)				
Soap, green.	Sapo viridis or mollis.	. . .	(External use.)				
Soda, solution of.	Liquor sodæ.	. . .	. .	. .	. .	. .	5–30
Sodium:							
acetate.	Sodii acetas.	. . .	10–40				
arsenate.	arsenas.	. . .	$\frac{1}{30}$–$\frac{1}{10}$				
benzoate.	benzoas.	. . .	10–30				
bicarbonate.	bicarbonas.	. . .	5–30				
bisulphite.	bisulphis.	. . .	5–20				
borate.	boras.	Borax.	5–15				
carbonate.	carbonas.	. . .	5–10				
chlorid.	chloridum.	Table salt.	. .	Emetic $\frac{1}{2}$–1			
hypophosphite.	hypophosphis.	. . .	5–10				
iodid.	iodidum.	. . .	5–31				
nitrate.	nitras.	. . .	1–4				
phosphate.	phosphas.	. . .	31–124				
salicylate.	salicylas.	. . .	10–31				
sulphate.	sulphas.	Glauber's salt.	(1 dr. to $\frac{1}{2}$ oz.)				
Solutions (see page 341).							

Squill:	(*Urginea maritima.*)						
fluid extract.	Extractum scillæ fluidum.	. . .	. .	. .	. .	1–5	
syrup of.	Syrupus scillæ.	. . .	. .	. .	½–1		
tincture of.	Tinctura scillæ.	. . .	. .	. .	. .	10–20	
Stillingia, fluid extract.	Extract. stillingiæ fluidum.	Queen's root.	. .	. .	. .	10–60	
Stramonium:	(*Datura Stramonium.*) {	Jamestown weed. Thorn-apple.	}				
seeds, extract of.	Extract. stramonii seminis.	. . .	⅙–½				
tincture of.	Tinctura " "	. . .	. .	. .	. .	10–20	
Strophanthus, tincture of.	Tinctura strophanthi.	. . .	. .	. .	. .	3–8	
Strophantin.	Strophanthium.	. . .	$\frac{1}{100}$–$\frac{1}{50}$				
Strychnin.	Strychnina.	. . .	$\frac{1}{60}$–$\frac{1}{20}$				
Sugar-cane.	Saccharum.	. . .	(Dose, any quantity.)				
of milk.	lactis.	. . .	(Dose, any quantity.)				
Sulphonal.	Sulphonal (sulfonal).	. . .	10–40				
Sumbul:	(*Ferula sumbul.*)						
tincture.	Tinctura sumbul.	. . .	. .	. .	½–1		
Sulphur (roll).	Sulphur.	Brimstone.	(Disinfectant.)				
sublimed.	sublimatum.	. . .	60–120				
Terebene.	Terebenum.	. . .	. .	. .	. .	5–10	
Terpin hydrate.	Terpini hydras.	. . .	2–20				
Terpinol.	Terpinol.	. . .	. .	. .	. .	5–20	
Thein.	Caffeina.	Caffein.	½–2				
Thymol.	Thymol.	. . .	1–3				
Tully's powder.	Pulvis morphinæ compositus	. . .	5–10				
Turpentine, oil of.	Oleum terebinthinæ.	. . .	. .	. .	. .	. .	5–10
Urethane.	Urethane.	. . .	10–30				
Valerian:	(*Valeriana officinalis.*)						
fluid extract of.	Extract. valerianæ fluidum.	. . .	. .	. .	½–1		
tincture of.	Tinctura valerianæ.	. . .	. .	. .	1–4		
ammoniated.	ammoniata.	. . .	. .	. .	½–1		

English name.	Latin official name.	Synonym or popular name.	Dose.				
			Gr.	f℥	fʒ	♏	Drops.
Veratrin.	Veratrina.	. . .	$\frac{1}{40}$–$\frac{1}{10}$				
Veratrum viride:	(*Veratrum viride.*)	American hellebore.					
fluid extract of.	Extractum veratri viridis fluidum.	. . .	. .	. .	. .	. .	1–3
tincture of.	Tinctura veratri viridis.	. . .	. .	. .	. .	. .	1–8
Viburnum, fluid extract.	Extractum viburni opuli fluidum.	Cramp bark.	. .	. .	1–2		
Whiskey.	Spiritus frumenti.	. . .	. .	2–	–1		
Wild-cherry bark:	Prunus virginiana.	. . .	30–60				
fluid extract.	Extractum pruni virginianæ fluidum.	. . .	. .	. .	½–1		
infusion of.	Infusum prunum virginianæ.	. . .	. .	. .	4–8		
syrup of.	Syrupus pruni virginianæ.	. . .	. .	. .	½–2		
Wintergreen, oil of.	Oleum gaultheriæ.	Oil of gaultheria.	. .	. .	. .	10–32	
Wormseed, oil of.	Oleum chenopodii.	Oil of chenopodium.	. .	. .	. .	5–10	
Xanthoxylum bark:	(*Xanthoxylum americana*)	Prickly ash.					
fluid extract	Extract. xanthoxyli fluidum.	. . .	. .	. .	. .	10–30	
Zinc:							
acetate.	Zinci acetas.	(Locally in solution ½–3 gr.)					
bromid.	bromidium.	. . .	½–2				
iodin.	iodidum.	. . .	½–2				
oxid.	oxidum.	. . .	1–5				
phosphid.	phosphidum.	. . .	$\frac{1}{40}$–$\frac{1}{16}$				
sulphate (emetic).	sulphas.	. . .	10–30				
valerianate.	valerianas.	. . .	¼–1				

GLOSSARY.

A.

Abdomen. The belly; the cavity between the chest and the groins. In abdominal injuries a nurse has usually to keep her patient at rest and watch for signs of peritonitis. Laparotomy is the operation likely to be performed.

Abdominal. Pertaining to the abdomen.

Abductor. A muscle which draws a limb from the median line of the body.

Abnormal. Irregular, a deviation from the usual course.

Abortion. Miscarriage before the fourth month.

Abscess. A collection of pus in a cavity, the result of inflammation. If it disappears without being opened it is said to be *dispersed*. An abscess wound should pucker, and the edges sink; the pus should be whitish-green, inodorous, and moderately liquid.

Absorbents. Wool and other dressings which suck up moisture.

Absorption. The sucking up of substances by the lymphatic vessels.

Accident. A casualty or unforeseen event not characteristic of disease. An unexpected *symptom*.

Acooucheur. An obstetrician, a midwife.

A. C. E. Mixture. An anesthetic; 1 part alcohol, 2 parts chloroform, and 3 parts ether.

Aceta. Solutions of medicines in vinegar.

Acetabulum. The cup-like socket into which the head of the femur fits.

Acetic Acid. Vinegar.

Achilles Tendon. The large tendon attached to the heel-bone.

Acid. A compound which is capable of uniting with alkalies, but which when liquid has a sour taste, and turns blue litmus paper red. Vinegar and lemon-juice are acids.

Acidity. The quality of being sour; sharpness to the taste.

Acme. The crisis of the disease.

Acne. An eruption caused by the retention of secretion in the sebaceous glands.

Aconite. A poisonous anodyne. sometimes used as a cardiac sedative. It increases perspiration.

Acoustic. Pertaining to sound and hearing.

Acrid. Sharp, burning.

Action. The mode in which one object influences another. Actions may be divided into several classes, as chemical, organic, and physical. *Vital* actions are those necessary to life; *physiological* actions are those which are normal; *pathological* actions are those presented in a diseased condition.

Acupressure. Arrest of bleeding by means of long pins, with glass heads, passed across the course of the artery.

Acupuncture. Insertion of needles to treat certain diseases.

Acute. A severe but short attack of disease.

Adduct. To draw toward the centre or the median line.

Adductor. A muscle which draws toward the median line of the body.

Adenitis. Inflammation of a gland.

Adenoid. A glandular tumor, especially an overgrowth of the glandular tissue at the back of the nose, seen especially in young children, and partially closing the passages for respiration, and frequently producing mouth breathing and mental dulness.

Adhesion. The process by which severed tissues unite.

Adipose. Fatty.

Adiposis. Fatty degeneration.

Adjuvant. A secondary ingredient in a prescription, aiding the chief drug.

Adnexa. Appendages.

Adnexa uteri. The Fallopian tubes and ovaries.

Adolescence. The period between puberty and maturity. From 14 to 25 in a man; 12 to 21 in a woman.

Adult. A person who has passed the age of maturity.

Adynamic. Defect of power, weakness.

Aërobia. Bacteria which require oxygen or air for their existence.

Affection. Any condition in which mind or body is modified or affected; disease, febrile affection, cardiac affection, etc.

Afferent. Conveying from surface to centre; applied to the lymphatic vessels, and nerves.

Affusion. Pouring water upon the body as a remedy.

After-birth. A vascular organ which nourishes the fetus and is expelled after labor; placenta.

After-care. The care or nursing of convalescents.

After-pains. Pains from uterine contraction following labor.

After-treatment. (See *After-care.*)

Agalactia. Lack of milk in a mother.

Agglutination. A joining or adhering together.

Aggregate. Gathered in clusters.

Ague. An intermittent fever attended by alternate hot and shivering fits. If the fits occur every 24 hours it is called "quotidian ague"; if every 48 hours, "tertian ague"; if 72 hours, a "quartan"; if 96 hours, a "quintan." A nurse attending a case should have her thermometer, hypodermic syringe, and enema. Taking the temperature during hot and cold fits is very important. If quinin is not given as a medicine, it is often given as a subcutaneous injection, or by enema. Malaria.

Air-bed. A mattress made of india-rubber and filled with air. *Water-beds* are filled with water.

Air-cell. An air-sac; an air-vesicle of the pneumonic tissue.

Air-cushions. Cushions of various shapes made of india-rubber and filled with air, which the nurse blows in through a valve.

Air-passages. The respiratory organs—larynx, bronchia, etc.

Air-pump. An apparatus by which the air may be exhausted from a communicating vessel.

Alalia. Defect of speech caused by paralysis.

Albino. A person with white hair, fair skin, and pink eyes; caused by pigmentary deficiency.

Albumin. A proteid substance, the chief constituent of the body.

Albuminuria. The presence of albumin, a substance resembling white of egg, in the urine; a condition characteristic of kidney-disease. A synonym of Bright's disease. *Test for albumin:* the application of heat gives an opacity that does not clear on the addition of nitric acid.

Alcoholism. A morbid state produced by excessive drinking of wines or spirits. Watch for delirium tremens and morning vomiting.

Alienist. A physician who makes a specialty of treating mental diseases.

Aleukemia. Deficiency in the number of white blood-corpuscles in the blood.

Alimentary Canal. The tube through which the food passes from the mouth to the anus.

Alkali. The opposite to an acid; a soapy substance. Turns red litmus paper to blue. Soda and potash are alkalies.

Aloes. The juice of several varieties of aloe; astringent and cathartic.

Alopecia. Absence of hair, baldness.

Alterative. A remedy which alters nutrition and excretion and restores normal function to an organ or the body.

Alum. Crystals of aluminum and potassium. Very astringent, slightly emetic. Salts of aluminum are used as a non-volatile antiseptic. Alum dusted on wounds acts as a styptic, and arrests bleeding.

Alveoli. The sockets of the teeth.

Ambidexter. Equally skilful with both hands.

Amblyopia Indistinct vision; approaching blindness.

Amenorrhea. Abnormal absence of the menses.

Amentia. Defect of intellect, idiocy.

Ammonia. A volatile alkali with a pungent odor. Stimulant, also used as an expectorant. Chlorid of ammonium is often given as an inhalation, when it generally falls to the nurse to charge the inhaler.

Amnesia. Loss of memory.

Amnion. The sac directly encircling the fetus in utero.

Amniotic Fluid. (See *Liquor amnii.*)

Amputation. The removal of a limb or an organ. It is termed *primary* if performed immediately after the injury; *secondary* if performed later. A nurse should note the number of ligatures and sutures used. The strapping to keep the flaps together should be ½ inch broad for forearm to 1¼ inch for thigh. The stump should be kept raised, and with no clothes weighing on it. Watch constantly for bleeding or collapse.

Amyl. A radical composed of carbon and hydrogen. Amyl nitrite is sometimes inhaled (5 drops on lint) in angina pectoris, epilepsy, etc.; it should be given when the patient is lying down.

Anacrotic. Vibrations in the pulse-beat; marked on the upward line by the sphygmograph.

Analgesia. Diminished sensibility to pain.

Anasarca. Serum in the tissues; widespread dropsy.

Anatomy. The knowledge of the structure of the body, learnt by dissection. Deals with the skeleton, muscles, etc., and is generally taught in connection with surgical nursing.

Anemia. A deficiency of red corpuscles in the blood, generally accompanied by pallor of the face and palpitation of the heart. Pills containing iron, "Blaud's Pills," are often given. Fresh air and diet are the most important factors in the nursing. Foods rich in salts, as rare beef, vegetables, and fruits, are given.

Anesthesia. Insensibility to pain. *Local anesthesia* is loss of feeling of a limited part of the body produced by a spray of the anesthetic or occurring spontaneously.

Anesthetic. The agent which produces insensibility. Before a patient is put under an anesthetic the nurse must see that there is nothing in the mouth (false teeth must be removed), and that all clothing is loose. No solid food must be taken by the patient for 6 or 8 hours before the anesthetic is given. Watch if the patient becomes livid, or if the breathing becomes shallow and irregular; these are dangerous symptoms.

Aneurysm. A dilatation of an artery. The treatment aims at producing coagulation of the blood in the aneurysm, as a rule. The nurse may be called upon to apply digital compression—compression by the fingers. Sudden death is frequent in these cases, and the nurse has to keep the patient absolutely at rest.

Angina Pectoris. A neurosis of the heart usually associated with disease of the base of the aorta and of the coronary arteries, and manifested clinically by paroxysms of intense pain and oppression in the region of the heart, a sensation of impending death, etc., and frequently terminating fatally.

Angioma. A tumor composed of blood-vessels.

Ankylosis. An immovable state of a joint resulting from union of the bones.

Anodyne. A remedy to procure relief from pain, such as opium.

Anorexia. Lack of appetite, abhorrence of food.

Anteflexion. A bending forward, as of the uterus.

Anthelmintic. Applied to remedies for expulsion of intestinal worms.

Anthrax. A carbuncle or malignant boil. *Charbon anthrax* is contracted from animals, and is fatal in 30 per cent. of cases. The pustule is generally excised.

Anthypnotic. An agent to prevent sleep.

Antidote. The corrective to a poison; thus alkalies are given in cases of poisoning by acids.

Antifebrin. Against fever; an agent composed of anilin and glacial acetic acid, used to reduce temperature. *Caution:* may cause alarming symptoms.

Antimony. A salt used as a cardiac depressant and to promote perspiration. Poison. *Antidote,* tea or tannic acid.

Antiperiodic. An agent to prevent the regular return of certain symptoms. Thus quinin is used in ague as an antiperiodic.

Antiphlogistic. Relieving inflammation.

Antipyretic. A remedy for high temperature.

Antipyrin. A drug, used in the form of a white powder, to reduce high temperature. It begins to act in 15 minutes. Causes perspiration, and, in rare cases, cardiac weakness. *Caution:* may cause alarming symptoms.

Antisepsis. Exclusion of the germs that cause putrefaction; the totality of measures taken to prevent septic poisoning.

Antiseptic. Against putrefaction. A nurse has much to do with the proper use of antiseptics, especially in surgical cases, where, if putrefaction starts in a wound, there is great danger. Iodoform, carbolic acid, corrosive sublimate, salicylic acid, chlorine, terebene, eucalyptus, thymol, and Condy's fluid are the commonest antiseptics. Strict attention must be paid to all orders given in connection with the use of these agents, and in every case a nurse must rinse her hands in some disinfectant both before and after dressing a wound. The *antiseptic spray* is an apparatus consisting of a lamp, boiler, and jar containing the carbolic acid, used to throw a spray during operations, or the dressing of wounds.

Antitoxin. A substance or serum used to counteract a disease by subcutaneous injection.

Antrum. A cave; applied to the maxillary sinus, etc.

Anuria. Suppression of urine.

Anus. The lower termination of the rectum, the opening through which fecal matter is discharged. An *artificial anus* is an opening made into some higher portion of the intestinal canal, when for some reason the proper anus is absent or useless. The operation to make an artificial anus is colostomy.

Aorta. The large artery rising from the left side of the heart, and supplying blood to the whole body.

Aortic Valve. The valve at the junction of the left ventricle and the aorta.

Aperient. A mild purgative medicine, such as cascara, usually given at bed-time.

Aphasia. Speechlessness, often caused by cerebral lesion.

Aphonia. Loss of voice, due to fault in the vocal cords.

Aphthæ. Small white ulcers in the mouth; a disease of infants. The nurse must watch for intestinal derangement. The mouth of the infant must be cleansed with borax, or with some similar preparation, after each nursing.

Apnea. Suspended respiration. Sometimes seen in chloroform anesthesia, and in the newborn.

Apoplexy. Sudden loss of consciousness, motion, and sensation due to hemorrhage into the brain or to the plugging of one of the blood-vessels of the brain. Paralysis of one side of the body, stertorous breathing. The patient is kept recumbent, with ice to the head, and a purgative is usually given. Note if the pulse grows weak and the surface cold. Great variations of temperature, with giddiness, may point to another attack coming on.

Appendectomy. Removal of the appendix vermiformis.

Appendicitis. Inflammation of the vermiform appendix.

Appendix Vermiformis. A rudiment of the lengthened cecum; or, according to Darwin, a relic of the lower form of life from which we have sprung. Inflammation of the vermiform appendix occurs in "typhlitis," and may lead to peritonitis. Relapse must be watched for. Surgical interference often has to be resorted to, and, in some cases, laparotomy is performed, and the appendix removed.

Application. The act of applying anything, as a plaster, bandage, etc.

Apyrexia. An intermission or absence of fever.

Aqua. Water: the abbreviation is *aq.*, while *aq. bull.* stands for boiling water; *aq. dest.*, distilled water; and *aq. mar.*, for sea water.

Aqua Fortis. Nitric acid. A powerful corrosive used in testing. Must be used with care, for if it comes in contact with the fingers it causes a burn. *Antidotes:* magnesia, milk.

Areola. The brown circle about the nipple of the breast.

Areometer. An instrument for measuring the specific gravity of fluids; a hydrometer.

Armpit. (See *Axilla.*)

Arnica. The tincture of arnica is used for bruises as a local stimulant.

Arsenic. A poison. Given frequently, in the shape of a white powder, in small doses, in skin diseases and other affections. Should be given after food. Report at once if the tongue gets a white fur, or diarrhea or gastric pains commence. *Antidotes* for overdose: magnesia, with tincture of iron, chalk and water, milk.

Arteries. Tube-like vessels through which the blood is propelled by the heart to the peripheral organs. (See *Axillary, Brachial, Femoral,* and *Tibial.*)

Arteritis. Inflammation of the arteries.

Artery. A tube which conveys the purified blood from the heart to the capillaries. Bleeding from an artery is bright red, and flows in jets. A nurse should know the points at which it is possible to arrest bleeding by pressure on the artery; in every case this point is nearer the heart than the site of injury. In amputation, etc., the severed arteries are tied with ligatures of silk or of catgut.

Arthritis. Inflammation of the joints, as occurs in gout, rheumatism, etc.

Articular. Relating to the joints.

Articulation. A joint or juncture of bones; the mechanism of jointing. The articulation of a skeleton is the manner in which the bones are joined together. The *movable* articulations of the bones are of various forms: 1. Those in which the bones glide upon plane surfaces, as in the articulation of the fibula with the tibia; 2. Those articulations known as "ball-and-socket joints," such as the hip-joint; 3. Those having a hinge-like articulation, with a forward and backward motion only, as the knee-joint. Applied also to the distinct enunciation of articulate speech.

Arytenoid. The name of two funnel-shaped cartilages and two glands of the larynx.

Asafetida. An antispasmodic, chiefly given in hysteria. Strong unpleasant smell.

Ascaris. A genus of worm found in the human body. *Ascaris lumbricoides*, long round worm; *ascaris vermicularis*, thread-worm.

Ascites. Dropsy of the abdomen.

Aseptic. Free from putrefaction. In aseptic surgery all instruments, dressings, etc., are sterilized by heat before use.

Asphyxia. Suspended animation, when the lungs are deprived of air, as in the newborn.

Aspiration. The operation of drawing off fluids from the body by means of an *aspirator:* this instrument consists of a hollow exploring needle fixed to a tube, which connects it with a bottle; the bottle in its turn is connected with an exhausting pump. There are two stop-cocks at the head of the bottle, one to each connection. The air in the bottle is exhausted, and the needle is plunged into that part of the body where the fluid is congregated. The duty of the nurse is to have a second bottle at hand in case the first is not large enough to contain all the fluid, and to measure and note the amount of fluid withdrawn. She should also have ready a flannel bandage, 12 inches broad, lint, sticking-plaster, hot water, sponges, pins, and brandy. After-treatment: rest, light stimulating diet.

Assimilation. The process of transforming food into such a nutrient condition that it is taken up by the circulatory system.

Asthenia. Failure of strength, debility.

Asthma. A disease marked by paroxysms of difficult breathing, with sense of suffocation. Asthma is generally chronic, and not dangerous till other complications ensue. The duty of the nurse is to have any inhalations or medicines ordered always at hand, in case an attack comes on: also to note the sputum. The patient must be kept strictly to the diet ordered, as this has great effect in mitigating the spasms.

Astigmatism. Inequality in the refractive power of the eye.

Astragalus. The ankle bone.

Astringent. A medicine causing contraction and arresting the flow of secretions.

Ataxy. Irregularity; applied to locomotion, to the pulse, and to certain fevers.

Atony. Wanting in tone or vigor; weakness.

Atresia. Absence of a natural passage.

Atrium. The portion of the auricle of the heart that receives the venous blood.

Atrophy. Wasting; one limb or organ of the body is often afflicted with atrophy without the other parts suffering.

Atropin. The active principle of belladonna. Used as a sedative in asthma, neuralgia, spasms, etc., and hypodermatically to check sweating, etc. Applied to the eye, it soothes and causes enlargement of the pupil. It is a poison. *Antidotes:* sulphate of zinc as an emetic, ammonia, and stimulants.

Audiphone. A fan-shaped instrument held against the teeth to increase hearing, *via* the cranial bones.

Auditory Canal. The passage extending from the external ear to the tympanic membrane.

Aura Epileptica. A peculiar sensation, like a current of air rising from the limbs or body to the head, ushering in an epileptic attack.

Auricular. Pertaining to the ear.

Auricle. The external ear; the two uppermost chambers of the heart are called, respectively, the "left" and "right" auricles. A small gold instrument worn in the ear to aid hearing is also termed an auricle.

Auriscope. An instrument fitted with a speculum for examining the internal ear.

Auscultation. Listening to sounds of the body for the purpose of diagnosis. For *immediate auscultation* the ear is placed directly against the body, for *mediate* auscultation a stethoscope is used.

Autopsy. A post-mortem examination or examination after death.

Axilla. The cavity beneath the upper part of the arm at its junction with the shoulder.

Axillary Artery. The artery of the armpit, connecting the subclavian and brachial arteries.

B.

Bacillus. A rod-shaped bacterium; the comma bacillus is the germ of cholera.

Backbone. The vertebral column; spine.

Bacteria. Germs; microörganisms. Of interest because many diseases are due to them.

Bag of Waters. The membranes enclosing the liquor amnii as they project through the os uteri in the first stage of labor.

Baking Soda. Sodium bicarbonate; saleratus.

Ballottement. The falling back of the fetus when pushed upward by the finger; a sign of mid-pregnancy.

Balneum. A bath, abbreviated to baln. *Tepidum*, warm, or 85° to 95° Fahr., immersion for fourteen minutes. *Calidum*, hot, or 98° to 105° Fahr., immersion for ten minutes. *Frigidum*, cold, or 60° to 70° Fahr., immersion for five minutes. A nurse must always prepare the bath before the patient is put into it, and always use the bath-thermometer. The temperature of a vapor-bath may rise as high as 110° Fahr.

Balsam of Peru. Used to heal

slight scratches, etc., especially cracked nipples.

Bandages. The usual form of bandage is the roller, or long strip of linen rolled tightly into a cylindrical form. The arm bandage should be 2 inches wide and 6 yards long; the leg bandage, 3 inches wide and 8 yards long; the rib bandage, 6 inches wide and 6 yards long. The triangular bandage is the shape of a large handkerchief folded with two opposite points together. The T-bandage is formed of two pieces of roller bandage, the one being tacked to the centre of the other, so that they look like a capital T. Bandages are made of calico, flannel, or domette, the last a light, open, woollen, material. India-rubber bandages are used for ulcers and other surgical cases. The nurse must learn by practice to apply all bandages neatly and so as to give equal pressure (see p. 194).

Bath. See page 86 for the different varieties of baths.

Bath-thermometer. A Fahrenheit tube mounted in a wooden or a metal frame for immersion in water to ascertain its temperature.

Battery. A collection of jars for generating electricity.

Bearing-down. The feeling of weight or pressure in the pelvis in certain diseases. *Bearing-down pains* are uterine pains during labor.

Bed. The couch or support on which the body may rest in sleep and in sickness. (For the different forms and varieties of beds, see p. 32.)

Bed-cradle. A semicircular apparatus to prevent the contact of the bed-clothes with a diseased or an injured part.

Bed-pan. A large shallow vessel for receiving the fecal and urinary discharges from bedridden patients.

Bed-rest. An apparatus for propping up patients in bed.

Bed-sore. A sore caused on the buttocks, heels, or shoulders by constant pressure on the bed. Bed-sores arise in long illnesses if the nurse is not very careful. If a case is likely to be a long one, each morning after washing the patient, rub some spirit, such as methylated spirit or whisky, on the parts of the skin which show redness, particularly the lower part of the back, then dust with powdered starch. Change the patient's position as often as possible. It is a sign of bad nursing when bed-sores appear, and they must immediately be reported to the doctor, who will probably order zinc dressing, and have the patient put on a water-pillow.

Belladonna. A drug used to soothe pain; to check sweating and the secretion of milk. (See *Atropin.*)

Benzoic Acid. An antiseptic and expectorant, useful in chronic bronchitis and urinary disorders.

Beri-beri. An acute Indian disease, causing great weakness, anemia, and dropsy. The disease is sometimes seen in the Southern United States, and among the Chinese and Japanese of California. The patients should be well fed with nitrogenous foods and kept quiet and warm. A daily bath or rub should be given. Special attention must be paid to the ventilation of the sick-room.

Bile. The secretion of the liver; greenish, bitter, and viscid. To test for *biliary coloring matter*, pour a few drops of the urine on a white plate, and add a few drops of nitric acid, when, if the coloring matter be present, a play of colors—violet, green, and red—will occur.

Bilious. A term applied to digestive disturbance arising from irregular biliary secretion.

Binder. A broad band passed tightly round the abdomen after childbirth. An ordinary round towel, or a piece of flannel 1¼ yds. in length and 18 in. in breadth, will do for the mother. The infant needs a fine flannel or twilled binder, 4 inches broad and long enough to go well round the body and overlap.

Biparous. Bearing twins.

Birth. The delivery of a child; parturition. *Plural* birth, the birth of more than a single child; *posthumous* birth, the birth of a child after the death of its father; *premature* birth, expulsion of a viable fetus before full term; *still-birth*, a child born lifeless.

Birth-mark. A patch of congenital discoloration of the skin due to a dilated condition of the capillaries. "Mother's mark."

Bismuth. Stomachic sedative and tonic. Causes black stools. Overdose poisons.

Bistoury. A small surgical knife, usually curved, for making incisions.

Bladder. The sac which holds the urine. Sudden injury to the bladder, such as rupture, is generally followed by shock. To procure perfect rest for the patient and to measure the urine are points for special attention from the nurse. The Latin term for the bladder is *vesica*.

Bland. A term applied to mild and soothing medicines and applications.

Bleeding. (See *Hemorrhage*.)

Blepharitis. Inflammation of the edges of the eyelids.

Blind-spot. Point where the optic nerve enters the retina: it is absolutely blind.

Blister. An agent producing a vesicle containing serum; usually a blistering fluid, or a plaster (cantharides). The nurse generally is entrusted to apply the blister; the part must first be washed with soap and warm water, and the plaster fastened lightly with a bandage, or, if fluid is used, outline the spot with olive oil to prevent the fluid spreading; paint on with a camel's-hair brush. A blister takes from six to twelve hours to rise. To dress, snip the most pendant part of the bleb, and let the serum run out into a receiver, or a bunch of absorbent cotton. Apply the ointment ordered. A *perpetual blister* is a blister kept open for a longer or shorter time by means of appropriate dressings.

Blood. The fluid that circulates through the heart, arteries, and veins. *Arterial* blood, "red blood," so called because contained in the arteries; *venous* blood, that contained in the veins.

Blood-casts. Microscopic filaments of coagulated blood found in the urine, or tube casts to which blood corpuscles are attached.

Blood-clot. The coagulum, or jelly-like mass formed in blood when it clots.

Blood-current. The "flow" of the blood through the arteries and veins.

Blood-poisoning. A term denoting any ailment arising from the introduction of decomposing organic matter or putrefactive germs into the blood. (See *Pyemia* and *Septicemia*.)

Blood-serum. A yellowish, thin fluid constituent of blood, separating from the blood-clot or fibrin in coagulation.

Blood-vessels. Tube-like structures for conveying the blood throughout the body.

Boil. Popular name for a small tumor or furuncule.

Bone-repair. The healing of a broken bone. (See p. 187.)

Borax. Boric acid and soda; used as an antiseptic, and as a soothing drug in diseases of the throat, nares, etc. Also to promote catamenial discharge.

Boric Acid. A mild antiseptic in the form of white crystals, used to impregnate lint and wool, which are colored pink to distinguish them.

Bougie. A slender instrument for dilating contracted passages, made of metal, elastic-gum, whalebone, or catgut.

Bouillon. French term for broth.

Bounding Pulse. A pulse in which a weak beat is succeeded by a strong, full beat.

Bowels. (See *Intestines*.)

Brachial Artery. The artery of the upper arm extending along the inner side.

Brain. The general contents of the skull. (See *Cerebrum*.)

Breast. The upper anterior part of the body between the neck and abdomen; also the *Mamma* (q. v.).

Breast-bone. A flat, oblong bone at the anterior part of the thorax.

Breast-pump. An instrument for drawing the milk out of the breast.

Breath. The air exhaled from the lungs; applied also to the act of inspiration.

Breathing. (See *Respiration*.) *Abdominal* breathing is that in which the abdominal walls move decidedly and in which the diaphragm is actively engaged; *thoracic* breathing is respiration in which the thoracic walls are actively moved.

Bregma. A space on top of an infant's head where the parietal bones join the frontal bones. It is diamond-shaped.

Bright's Disease. Disease of the kidney, associated with albuminuria and often with dropsy. The treatment may include vapor baths, hot packs, cupping, sponging, the injection of pilocarpin, and other methods of increasing perspiration, which the nurse must attend to. The urine must be measured, tested for albumin and examined for casts and epithelium. The diet ordered must be strictly adhered to. Convulsions should be watched for.

Broad Ligaments. The suspensory or broad ligament of the liver. Also the suspensory ligaments of the uterus.

Bromidrosis. Offensive sweating most common in the feet. Cork soles should be worn, and the stockings dusted with boric acid.

Bromids. In large doses are valuable hypnotics, in small doses they lessen cerebral excitement. They consist of a combination of bromin with potassium, sodium, or ammonium. In epilepsy, bromid of potassium is found very useful.

Bronchiæ. The bronchial tubes or air-tubes between the larynx and the lungs.

Bronchitis. Inflammation of the bronchial tubes; it may be either chronic or acute. (See p. 268.)

Bronchocele. Enlargement of the thyroid gland; goitre.

Bruit. The French for "sound" and used with regard to the sounds heard in auscultation. *Bruit de braquement,* crackling; *de diable,* humming; *de frottement,* friction; *de pot fêlé,* cracked-pot; *de rape,* rasping; *de soufflet,* bellows sound.

Bryonia. A drug extracted from the roots of bryony. Purgative; acts also on the kidneys.

Bubo. Swelling of the groin with suppuration; generally syphilitic, and therefore to be approached with care by the nurse. Old dressings to be burnt at once, and forceps only to be used in removing them.

Buchu. Drug used as a diuretic and antacid.

Burnett's Fluid. A solution of chlorid of zinc used as a disinfectant. Poison.

Burns. Any severe burn or scald is usually followed by collapse, and for this the nurse must watch. Congestion of the internal organs may follow if the patient rallies from the first shock. In changing the dressings only a small piece of the injured surface must be exposed to the air at once, hence the dressing is usually in strips. Whiting and water, olive oil, or immersion in water, are the usual means of excluding the air. Skin-grafting may be performed subsequently to assist in starting granulation. The smell of a burn is very disagreeable, but can to a certain extent be overcome by the use of some simple cologne.

Buttocks. The nates, or fleshy part of the body posterior to the hip-joints, formed by the masses of the glutei muscles.

C.

Cacao Butter. A pure white fat derived from the fixed oil of the chocolate tree. It has a pleasant odor and taste, and is used largely in making suppositories.

Cachexia. Depraved habit of the body.

Cadaver. A dead body.

Caffein. The alkaloid of coffee; a cerebral stimulant and powerful diuretic. Sometimes given hypodermatically for headaches and neuralgia.

Calabar Bean. A spinal sedative and depressant. The alkaloid is called "physostigmin" and is used as an antiseptic in ophthalmic cases. It contracts the pupil.

Calculus. A concretion found in the various reservoirs of the body, usually called "stone" or "gravel." It is most common in the bladder, and the operations for the removal or crushing of the stone are lithotomy, lithotrity, and litholapaxy (which see).

Calendar Month. The calendar or *solar* month is the twelfth part of the year = to 30 days, 10 hours, 29 minutes. The *lunar* month is the interval from one new moon to another = to 29 days, 12 hours, 44 minutes.

Callous. Hard, insensible, thickened.

Callus. The new material formed when a fractured bone unites.

Calomel. Subchlorid of mercury. An alterative and purgative, used specially in bilious cases and in infantile diarrhea. Sometimes used as an ointment in skin diseases. Watch for mercurialism.

Caloric. Heat.

Camisole. A strait-jacket; an apparatus used for restraint.

Camphor. A volatile oil, used both internally (sometimes causes alarming symptoms) and externally as a stimulant.

Canal. A term applied to any passage of the body other than ducts of glands, blood-vessels, and air-passages. (See *Auditory Canal*, p. 406, and *Alimentary Canal*, p. 402.)

Cancer. A malignant growth, a tumor. The only sure cure is by operation, and then there is the risk of recurrence of the disease in a fresh part. In cancer of the uterus the operation is hysterectomy. Cancer takes three forms: *Scirrhous*, or hard cancer, most common in the breast; *encephaloid*, or soft cancer, usually internal; *epithelial* cancer, most common in the lip. Soft cancer may be fatal in a few months; hard-cancer patients may live for years. The nurse has often to tend cancer patients; the treatment consists of extreme cleanliness, and such methods of relieving pain as the physician orders. The smell of cancer is often very offensive.

Cancrum Oris. Ulceration of the mouth in ill-fed children.

Cannabis Indica. Indian hemp, hashish; a soporific.

Cannula. Surgical name for a metal tube, such as that employed in the operation of tapping.

Cantharides. Dried Spanish flies, used to produce blisters.

Caoutchouc. India-rubber.

Capillaries. The minute blood-vessels connecting the veins and arteries.

Capsicum. Cayenne pepper; a useful stimulant.

Capsule. A small usually ovoid case or shell, made in two parts fitting together, and composed of gelatin, for administering nauseous medicines.

Carbolic Acid. A powerful antiseptic produced from coal-tar. In its pure state it is called "phenol." Taken internally in large doses it is a poison, and the antidotes are powdered chalk, milk, and alkaloids. Carbolic acid may be absorbed into the system when it is used as a dressing; the nurse generally first discovers this by the urine, which, on standing, turns a very dark green. This must be reported to the doctor. Carbolic lotion is used for the hands at the strength of 1:40; for the spray, for moistening pads, etc., at the strength of 1:20. Nine parts of acid to one of glycerin is used as a caustic. *Caution:* Several deaths have occurred from nurses leaving carbolic acid within the patient's reach. If possible keep it under lock and key.

Carbonate. Compound of carbonic acid and a base.

Carbonis Ligni. Charcoal. Given for chronic diarrhea and dyspepsia.

Carbuncle. Severe inflammation of a piece of the skin and adjacent tissue; a large and painful boil. The patient's diet will need particular attention, as carbuncles are a sign of weakened constitution; it is possible that spray treatment may be tried; or the boil may be opened and the wound dressed.

Carcinoma. Cancer.

Cardiac. Relating to the heart.

Cardiograph. An instrument which records the beating of the heart.

Caries. Decay of the bone, and subsequent suppuration. The nurse has to secure rest of the diseased part, absolute cleanliness of the wound, and to note the discharge—particularly if it contains pieces of bone.

Carminative. A remedy for flatulence. *Dalby's* contains opium and must be used with caution.

Carotid. The principal (right and left) artery of the neck.

Carpus. The wrist.

Carron Oil. Linseed oil and lime-water in equal parts; a dressing used for burns.

Cartilage. Gristle; a semi-transparent substance of the body, very elastic, and softer than bone.

Caruncle. A small fleshy growth; hence *caruncula lachrymalis*, the small, red globe of the inner corner of the eye; and *carunculæ myrtiformes*, the granulations round the vagina, remnants of the ruptured hymen.

Cascara Sagrada. A mild laxative.

Cascarilla. Drug used as an astringent.

Case. A single instance or example of a disease.

Case-taking. The chief points are—(1) History of the previous health of the patient, his occupation, his habits of life; (2) history of the present illness from the very first symptoms; (3) history of the patient's family, particularly with reference to hereditary tendencies; (4) the patient's condition at the time of taking the case.

Casein. An albuminate component of milk.

Castile Soap. Soap made from olive oil.

Castor Oil. An aperient medicine of unpleasant taste. It is best administered to adults in coffee or in brandy and water. Pour some coffee into a cup and shake the cup so that the sides are wet with coffee; pour the oil into the centre of the coffee; make the patient open the lips widely and let the oil pass well to the back of the throat. Give a drink of pure coffee just before and just after the oil. For children, powder a dessertspoon with pulverized sugar, pour in the oil, powder its surface with sugar. Give a drink of milk just before and just after the oil. Usual dose: teaspoonful for a child; ½ to 1 ounce for an adult.

Casts. A cast is a fibrous or plastic mass that has taken the form of some cavity in which it has been moulded. Casts are either intestinal, nasal, renal, tracheal, etc., according to their *source;* and epithelial, fatty, fibrinous, granular, mucous, etc., according to their constitution. (See *Blood-casts*, *Epithelial Casts*, and *Renal Casts*.)

Catalepsy. A disease producing periods of trance, during which the limbs remain in any position in which they are placed. A pinch of snuff to the nostrils will sometimes break the trance. A nurse for these cases must have considerable moral strength.

Cataplasm. A poultice.

Cataract. Opacity of the lens of the eye, causing blindness if not removed. The operation is usually iridectomy. The nurse has to secure perfect rest to the patient in a darkened room. Probably atropin, cocain, or some other drug will have to be dropped into the eye at intervals.

Catarrh. Inflammation of the mucous membrane, generally applied to the nose and throat, but also to the internal organs at times. Thus we hear of "gastric catarrh." An ordinary cold in the head is *nasal catarrh*. Inhalations may be necessary.

Catechu. An astringent, given chiefly in diarrhea and dysentery.

Catgut. The intestines of a sheep treated to make ligatures.

Cathartic. A purging medicine, such as senna.

Catheter. An instrument for withdrawing water from the bladder; made either of silver, india-rubber, silk-elastic, or whalebone. When not in use, the instrument should be kept in 1 : 20 carbolic solution; just before and just after using, it should be washed through with a stream of warm water. The method of passing the catheter can only be learned by practice.

Cathode. In electricity, the part immediately touching the negative pole.

Caul. The membranes about the head and face of an infant at birth.

Caustic. A substance which burns

living tissue. The most common form is nitrate of silver, pointed like a pencil, and held in a metal clip. The nurse must be careful to keep the caustic covered, and, in using it, must only touch the prescribed area. Perchlorid of iron and sulphate of copper are slightly caustic.

Cauterize. To sear or burn with a cautery or a caustic.

Cautery. The actual cautery is the application of heated metal to living tissue. Cautery irons are of different shapes, and consist of a straight piece of iron fixed in a handle; the tip of the iron is either a point, a button, or a bulb. They are heated in the fire till red; if then lightly touched on a bleeding surface will arrest hemorrhage. *Galvano-cautery* is burning the tissues with a wire made hot by electricity. *Potential cautery* is burning the flesh by means of chemicals. *Thermo-cautery* is the cauterization of flesh by means of heat generated on galvanic principles. The *galvano-cautery* and the *thermo-cautery* are now largely replacing the actual cautery.

Cavity. A hollow, either *normal*, as the abdomen, chest, etc., or *abnormal*, as a pulmonary or a dental cavity.

Cayenne Pepper. (See *Capsicum*.)

Cecum. A "blind pouch" or *cul-de-sac*, about 2½ inches long, situated between the termination of the ileum and commencement of the large intestine. The structure and relations of the cecum render it peculiarly liable to two forms of disorder—accumulation of the contents of the alimentary canal and inflammation.

Cellular. Relating to or composed of cells. *Cellular tissue* is the network connecting the majority of the minute parts of the body.

Cellulitis. Inflammation of the cellular tissue.

Centigrade. French method of marking temperature; the freezing point is 0°, the boiling point 100°. (See *Temperature*.)

Centigramme. The one-hundredth of a gramme, nearly equal to 0.16 part of a grain avoirdupois.

Centimetre. *Cubic centimetre*, written *cc.*, and used in foreign prescriptions, equals 16 minims.

Cephalalgia. Pain in the head; "cephalo" is used to compound many terms; thus, *cephalometer*, an instrument for measuring the head.

Cephalhematoma. A bloody tumor on the head of an infant.

Cephalotribe. An instrument consisting of two blades and a screw, used to crush the fetal head.

Cerate. A greasy substance consisting of wax mixed with oils, fatty substances, or resins, and of such consistence that at ordinary temperatures it can readily be spread upon linen or muslin, and yet is so firm that it will not melt or run when applied to the skin.

Cerebellum. The little brain at the back of the head, between the cerebrum and the medulla oblongata.

Cerebral. Relating to the brain.

Cerebrum. The big brain, occupying the cranium.

Cerumen. Waxy secretion of the ear.

Cervix. The neck.

Cervix Uteri. The neck of the uterus.

Cesarean Section. An abdominal incision for extracting the fetus from the uterus. It was first performed successfully on a woman in 1498.

Chafing. Excoriations, abrasions, and inflammation produced by friction of parts, or between the folds of the skin, etc.

Chalazion. Enlargement of one of the glands on the border of the eyelids, caused by stoppage of its duct.

Chalybeate. Containing iron.

Chamomile. Antispasmodic medicine.

Charcoal. Prescribed as a medicine in dyspepsia, and generally given as tabloids. A charcoal poultice is made of equal parts of flaxseed meal and powdered charcoal.

Charpie. Unravelled, shredded, linen, used for dressing wounds.

Chart. A ruled sheet of paper on which the nurse records the temperature, pulse, motions, etc., of a patient.

Chartæ. Papers on which medicinal substances are spread. Thus, *Chartæ sinapis*, a leaf of mustard-paper.

Chattering. The noise made by the teeth striking together repeatedly and rapidly, as under the influence of cold or of fright.

Cheese-cloth. A coarse cotton fabric of an open texture; ordinarily used in cheese-making for wrapping the cheese.

Chest. (See *Thorax*.)

Cheyne-Stokes Breathing. Irregular respiration consisting of ten or fifteen short breaths and then a long pause. A bad symptom.

Chicken-pox. Varicella. Rash appears on the chest on the first day; the disease runs its course in a fortnight. Give light food and keep from cold; prevent the patient from scratching the pimples, or scars will be made. Infectious.

Chilblain. A blain or sore produced by cold; an erythematous condition of the hands or feet, accompanied with inflammation, pain, and sometimes ulceration.

Childbirth. The act of bringing forth a child.

Chill. A sensation of cold accompanied by shivering, usually appearing shortly after exposure to cold or wet. It is usually the first symptom of grave acute disorders, as pneumonia; and is a prominent symptom of various forms of malarial fever. (See *Rigor*.)

Chiropodist. One skilled in cutting and extracting corns.

Chirurgical. Surgical.

Chloral. White opaque hypnotic. *Antidote* for overdose, fresh air, ammonia, strychnin, artificial respiration.

Chlorine. Antiseptic. Used as a lotion for sores; also as a gargle, inhalation, etc.

Chloroform. A colorless liquid used to produce anesthesia by inhalation. Chloroform must always be kept in the dark. The private nurse has sometimes to administer chloroform; a simple inhaler is made of a small wire mask over which a piece of flannel is stretched, or a few drops of chloroform can be sprinkled on a towel and held close to the patient's face. Chloroform is only safe when mixed with air; so at intervals the towel must be removed and the patient allowed a breath of air. Unconsciousness is reached when all the muscles are relaxed, and the patient's hand drops when raised. The eyeball should *never* be touched, as it may cause inflammation. Many cases have been known through this practice of the etherizer. *Antidote* for an overdose, fresh air and artificial respiration. If the nurse is administering the chloroform, she must be very careful to watch the respiration of the patient. Before the anesthetic is administered, false teeth and tight clothing must be removed. No solid meal must be given for six hours before the operation, but a little beef-tea may be given two hours before. After the operation the nurse must be prepared for the vomiting which is usual.

Chlorosis. A peculiar form of anemia common in females about the period of puberty. It causes weakness, rapid heart-action on exertion, and faintness, for all of which a nurse must be prepared. It is generally met by iron tonics, sea-air, and strengthening diet.

Cholagogues. Agents that stimulate the secretion of bile.

Cholera. An epidemic disease. *Symptoms:* Cramp, vomiting, and rice-water evacuations. "English" cholera is the mild form; "Asiatic" is the severe form. Much depends upon the nursing; the patient must be kept warm and recumbent, medicines for the alleviation of pain must be given promptly. The great danger is from collapse. The patient should, if possible, be placed in a separate room. Only the persons in attendance should enter the room. If the apartment should not allow of sufficient isolation, the patient should be removed to a hospital. Those who are in continued attendance upon choleraic patients, or who live with them, should obey the following rules: Neither food nor drink should be taken in a room occupied by a patient. The mouth should be carefully rinsed before each meal, and the hands and forearms washed with a solution of borax. The face, head, and hands, and, if possible, the whole body, should be washed daily with water containing 160 grains of borax. The disease runs its course swiftly, and has been fatal in India in a few hours.

Cholera Infantum. Summer diarrhea of infants; it requires immediate attention, or prostration soon comes on. Diet is of the utmost importance.

Cholera Morbus. An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, with enteric pain, purging, vomiting, spasmodic contractions of the muscles, etc. It is a summer disease.

Chorea. St. Vitus' dance: involuntary twitchings of the muscles; most common in children. These cases must not be left alone, and every effort must be made to prevent children from hurting themselves. Diet nourishing. Baths and gymnastic exercises may be ordered.

Chorion. The vascular and outer envelope of the fetus.

Chronic. A term applied to a disease that is protracted.

Chyle. The milk-like fluid into which food is transformed before it is aborbed into the blood.

Chyluria. Milk-like urine.

Chyme. The pulpy mass of food which passes from the stomach into the intestines.

Cicatrix. The scar of a healed wound or ulcer.

Cilia. Eye-lashes.

Cinchona. Peruvian bark, which yields quinin. A tonic, and a valuable medicine in malarial fevers.

Cinnamon. Sometimes given as an astringent.

Circulation. The movements of the blood from the heart, through the arteries, veins, and capillaries back to the heart (see p. 317).

Circumcision. The removal of a circular piece of the prepuce; generally performed on young children. The child has to be kept very quiet for some days, and very clean.

Cirrhosis. Contracted granular state of an organ, usually applied to the liver or the lung. A cirrhotic liver is generally produced by drink.

Cirsoid. Resembling a varix.

Citrate. Compound of citric acid and a base.

Citric Acid. Acid prepared from lemon-juice. Makes an astringent yet soothing lotion.

Clavicle. The collar-bone, going from each shoulder to the breastbone across the front of the chest. Fractured clavicle is set by a firm pad, 4 or 5 inches square, placed in the axilla, the forearm is bandaged over the chest, and the point of the elbow kept well back. No anesthetic needed as a rule.

Clavus. A corn; a thickening of the skin, common on the toes.

Cleft Palate. A congenital split in the roof of the mouth, so that the nose and mouth form one cavity. The child must be sat upright when fed, and a long teat employed, and the milk poured slowly to the back of the throat. It cannot suck, as it cannot create a vacuum, and the milk is liable to return down the nose. Operation usually takes place about two or three years of age.

Climacteric. The cessation of menstruation in females; often a critical period, when the health needs great attention.

Clinic. Bedside.

Clinical Thermometer. A slender glass instrument used to discover the temperature of the body. (See *Temperature.*)

Clitoris. A small organ of erectile tissue, found in the female in front of the pubes. The seat of sexual excitement.

Clonic. Spasmodic contractions, short and frequent.

Clot of Blood. A thickened mass of blood. See *Embolism.*

Cloves. The dried flower-buds of the clove tree. Cloves are largely used as a spice, and in medicine for their stimulant and aromatic properties.

Club-foot. Talipes. A congenital turning of the foot in a wrong direction. Generally necessitates the wearing by the child of a light splint, which may effect a cure. Massage is useful in the case of infants.

Clyster. An enema, or injection per anus.

Coagulation. Thickening of a fluid into curds.

Cocain. A powerful local anesthetic, much used by oculists and dentists. It enlarges the pupil of the eye. Useful to stay the craving for opium or drink. The hypodermatic injection of cocain produces severe symptoms in some people, and antidotes (amyl nitrite and morphin) should always be at hand.

Cocainism. Chronic poisoning from indulgence in the drug.

Coccyx. The tail-like termination of the spine.

Cochlea. The cavity of the internal ear.

Codein. A preparation of opium, used to soothe the nerves and induce sleep. It allays cough, and is useful in diabetes, etc.

Cod-liver Oil. A medicine used as a restorative and nutritive, particularly in consumption cases. It ought to cause the patient to increase in weight. It should be given after food, plain, if the patient will take it; if not, floated in milk, coffee, or orange-juice.

Colchicum. A drug used in gout; it reduces the blood-pressure and lessens muscular irritability. Poison.

Colic. Severe pain in the belly; generally allayed by hot fomentations.

Colitis. Inflammation of the colon. Poultices, opium injections, or morphia suppositories. In *membranous colitis* or *enteritis* casts are passed from the bowel.

Collapse. Severe sudden prostration. *Symptoms:* pallor, faintness of pulse, unconsciousness. *Treatment:* lay patient perfectly flat, keep warm, give sal volatile or alcohol in small doses, watch the pulse. Hypodermatic injection of brandy may be necessary in severe cases, or even artificial respiration, if the breathing actually stops.

Collar Bone. (See *Clavicle.*)

Collodion. Gun-cotton dissolved in alcohol and used in surgery to form a false skin. When painted over a commencing bed-sore, for instance, it hardens as it dries, and forms a slight protection to the tender skin. The stopper must never be kept out of the collodion bottle for more than a moment.

Colocynth. A drug used as a rapid and drastic purge.

Colon. The part of the large intestine between the rectum and the cecum.

Colostrum. A watery fluid flowing from the breasts the first two or three days after confinement, before the true milk comes.

Colotomy. Incision of the colon; a serious operation which may be performed in the lumbar or inguinal regions, in cases of fistula, obstruction, cancer, or ulceration of the rectum.

Coma. Insensibility, stupor, sleep.

Comatose. In a state of coma.

Comedones. Sebaceous secretions of the hair-follicles, commonly called "black-heads," and most frequent on the face.

Complication. The occurrence during the course of a disease of some other affection, or of some modifying symptom, or group of symptoms not ordinarily observed.

Compress. A tightly folded pad of linen used to secure local pressure.

Conception. The impregnation of the ovum.

Concretions. Bony deposits; calculi.

Concussion of the Brain. Sudden interruption of the functions of the brain, and consequent unconsciousness, through a blow or fall. Rest and quiet are necessary, and the application of cold to the head and warmth to the extremities. In mild cases consciousness returns in from a few minutes to a few hours.

Inflammation of the brain may follow if proper quiet is not obtained.

Condyle. A round projection at the ends of some bones.

Condy's Fluid. A valuable antiseptic, prepared from permanganate of potash. Often used by the monthly nurse when syringing is ordered for her patient.

Confections. Soft pastes containing drugs.

Confinement. The condition of women during childbirth.

Confluent. A term applied to eruptions in which the pustules run together.

Congenital. Existing at birth. *Congenital diseases* or *deformities* are those present at birth.

Congestion. Torpid stagnation of blood in a part of the body, as in the lungs or brain. *Congestion of the lungs* is brought on by chill, and the nursing treatment is warmth, rest, flaxseed-meal poultice to the affected part, and light diet. The temperature must be taken twice in the twenty-four hours, as inflammation often follows as the result of the congestion. *Congestion of the brain* is a term sometimes applied to brain fever, apoplectic strokes, or any form of delirium; quiet, darkness, and careful attention to the doctor's orders are necessary.

Conium. Hemlock, a poisonous drug which quiets muscular action, also the central nervous system. Used specially in cases of mania, or ovarian pain. *Antidotes:* Stomach-pump, stimulants, tannin.

Conjunctiva. The mucous membrane of the eye.

Conjunctivitis. Inflammation of the membrane of the eye, ophthalmia (which see).

Constipation. A confined state of the bowels; the nurse must always report to the doctor when no action of the bowels takes place in twenty-four hours. The remedies are usually either an enema or a laxative medicine.

Consumption. The popular term for tuberculosis of the lungs. (See *Phthisis.*)

Contagious. Spreading by touch; an infectious disease readily transmissible from the sick to the well.

Continued Fever. A simple febrile attack, such as typhoid fever, which runs its course uninterrupted by any attempt at treatment. The patient must be kept recumbent, cool, and fed on light diet. Note temperature.

Contraction. The act of drawing together or shrinking.

Contra-indication. An indication against a remedy or method of treatment.

Contusion. A bruise.

Convalescence. The period of returning strength after an illness. The nurse needs to amuse her patient, prevent rash deeds, or fatigue arising from too many visitors; supply light nutritive food at frequent intervals; avoid all talk about the past illness, and watch for a relapse.

Convolutions. The folds and twists of the brain or the intestines.

Convulsions. Violent spasms of alternate muscular contraction and relaxation, common in infants, and usually the result of too strong diet or of costiveness. *Clonic* convulsion is applied to spasmodic movements of short duration and alternate periods of relaxation, as in epilepsy. *Tonic* convulsion signifies a constant rigidity. *Uremic* is due to the altered state of the blood in diseases of the kidney. Convulsions occur in epilepsy, tetanus, hydrophobia, and chorea. (See *Eclampsia.*)

Copaiba. A diuretic; the oleoresin is also given in capsules for ascarides, etc.

Cord. The connection between mother and child at birth; after washing the infant, the remnant of the cord should be dressed with powdered starch, and a square of antiseptic gauze.

Core. The central slough or substance of a boil or carbuncle, formed of dead tissue.

Coriaceous. Of rough texture, coarse.

Corium. The internal layer of the skin.

Cornea. The clear, glass-like front of the eyeball.

Corn Starch. A flour made from the starchy parts of Indian corn, used for puddings, etc.

Coronal Suture. The joint of the parietal and frontal bones of the skull.

Corpora Lutea. Yellow bodies in the ovarium.

Corpuscle. A minute protoplasmic body—for instance, the red and white corpuscles of the blood.

Corrective. A drug which modifies the action of another drug.

Corrosive. Eating into, consuming.

Corrosive Sublimate. Bichlorid of mercury. Antiseptic; poisonous. The solution 1 in 1000 is very useful in infectious fevers; it is seldom used for instruments, as it corrodes steel. *Antidotes:* flour, milk, white of egg.

Coryza. Cold in the head, nasal catarrh.

Costal. Relating to the ribs.

Costive. Constipation.

Cotton. The white fibre obtained from the cotton-plant (*Gossypium*). *Absorbent* cotton is the fibre prepared by removal of oily matters for use in surgical operations, etc. (See *Collodion. Antiseptic cotton.*)

Cotton-wool. (See *Cotton.*)

Cough. Violent, sonorous expiration after closure of the glottis. *Hacking* cough is a short, broken, dry cough.

Counter-extension. Extension by means of holding back the upper part of a limb while the lower is pulled down.

Counter-irritants. The drugs used to produce counter-irritation (q. s.), called rubefacients, epipastics, vesicants or blistering agents, and pustulants.

Counter-irritation. Causing irritation of one part of the body to relieve another; also called "derivation" and "revulsion."

Coxalgia. Pain in and disease of the hip-joint. (See *Hip-joint.*)

Coxitis. Inflammation of the hip-joint.

Cradle. A series of small wooden arches used to keep the bedclothes from pressing on the injured part of the body.

Cramp. Sudden and violent contraction of the muscles, causing great pain. Friction may give relief.

Craniotomy. The operation of perforating the head of the fetus during parturition, crushing it, and removing the fragments.

Cranium. The skull.

Cravat. A bandage of triangular shape, used as a temporary dressing for a wound or a fracture. (See *Bandage.*)

Creolin. A drug nearly related to carbolic acid; antiseptic and disinfectant.

Creosote. An oily antiseptic liquid got from wood-tar. Used as an inhalation in phthisis, and as a remedy for toothache; also as a styptic, an antispasmodic, and an alterative. Gives the urine a blackish color.

Crepitation. The grating sound of two ends of a fractured bone rubbing together. Also a grating sound heard on auscultation in cases of pneumonia.

Cretinism. Imperfect mental, physical, and physiologic faculties, accompanied by goiter. Most common in Switzerland.

Crisis. The deciding point of a disease, from which the patient either begins to recover or sinks rapidly; often marked by a long sleep, sudden drop of the temperature, profuse perspiration or other phenomenon.

Crotchet. A hooked instrument used to extract remnants of the fetus after embryotomy.

Croton Oil. Used as a liniment and as a swift purge; causes red eruption on the skin. Poison.

Croup. Acute inflammation of the larynx and trachea, most common in young children. A nurse should know the breathlessness, restlessness, and crowing sound which are premonitory symptoms of croup; for a child may suffocate if attention is not immediate.

Crural. Relating to the thigh.

Cumulative. Increasing; adding to. Cumulative *action*, the production of a noteworthy and sudden result, after the administration of a considerable number of comparatively ineffective doses. The possible cumulative effect of certain drugs is one of the sources of danger that attend their administration.

Cupping. Blood derivation by applying cupping glasses to the surface of the body. Put a few drops of spirit of wine in the glass and swirl it round till the inside is moist to the brim. A plug of cotton-wool on a stick should then be dipped in the spirit, lighted, and passed quickly round the glass; this will produce a large momentary flame, and the glass must be immediately pressed on the desired place. The flame will have created a vacuum in the glass, which will cause an immediate rising of the skin. So far it is *dry* cupping, if it is *wet* cupping that is ordered, small incisions may be made in the skin by means of a special instrument or with a lancet before the cup is applied, or, having been applied, the glasses are removed, numerous small incisions are made in the risen skin, and the glass is replaced (after having been exhausted again), and a steady flow of blood will soon fill the glass. The wound can be dressed with some simple ointment on a piece of lint.

Cupri Sulphas. Sulphate of copper. An astringent and emetic. Poison.

Curette. A spoon-shaped instrument used in operations.

Cutaneous. Pertaining to the skin.

Cuticle. The external, or scarf skin.

Cutis. The derma, or true skin.

Cyanosis. Blue disease, a congestion of the venous system so that the blue blood of the veins discolors the skin.

Cyst. A tumor containing fluid, or semi-fluid, in a membranous sac.

Cystalgia. Pain in the bladder.

Cystitis. Inflammation or catarrh of the bladder; often chronic. The nurse will have to measure and test urine, and probably give douches. If obstinate, perineal incision in the male, or colpocystotomy in the female, may have to be performed.

Cystocele. Protrusion of the bladder.

Cystoscope. An instrument for examining the bladder; sometimes lighted by electricity.

Cystotome. A surgical instrument used in operations on the lens of the eye and on the bladder.

Cystotomy. Incision of the bladder; for the removal of stones, or for drainage. The nurse must watch in case peritonitis supervenes.

D.

Dead. The laying out of the dead is the nurse's duty; the eyes must be closed by gentle pressure of the fingers, the jaw must be tied up by a bandage passing under the chin and tied on the top of the head. The body must be washed all over one hour after death, orifices packed with cotton-wool, and clean garments put on (see p. 291).

Debilitants. Remedies which weaken.

Debility. Weakness, loss of power.

Decidua. A spongy membrane produced in the womb by conception, and thrown off after parturition.

Decoction. The extract obtained from any substance by boiling.

Decomposition. Putrefaction.

Decussation. An X-like crossing, especially of nerves or of nerve-like filaments.

Defecation. The act of evacuating the bowels.

Deformity. Abnormal shape or structure of a body or any of its parts.

Degeneration. Abnormal changes in the tissues. *Amyloid* degeneration is that of the tissues of blood-vessels, spleen, liver, etc., which became wax-like. *Fatty* degeneration is when the tissue becomes converted into fat, and thus incapable of work.

Deglutition. Act of swallowing.

Dejections. The fecal or other excrementitious matters discharged by the body.

Delirium. Extravagant talking, raving, generally due to high fever. The nurse must watch the patient carefully, as he is as irresponsible for his deeds as for his words, and may escape from bed, or even commit suicide. Too often a patient has committed suicide "in the absence of the nurse." The nurse should never be absent, at least without leaving some one in charge.

Delirium Tremens. *Mania-a-potu.* The trembling delirium due to excessive use of alcoholic liquors. The patient must be humored and soothed in every way, and watched incessantly. Collapse must be apprehended.

Delivery. Parturition; childbirth. *Post-mortem* delivery is the birth of a fetus after the death of the mother.

Deltoid. The muscle which forms the prominence of the shoulder.

Demarcation. A line of separation, as between healthy and gangrenous tissue.

Dementia. Feebleness of the mental faculties, inconsequent ideas.

Demulcents. Agents which protect and soothe mucous membranes.

Dengue. Breakbone fever or dandy fever; a disease of southern and tropical climates marked by high fever, agonizing pains, and an eruption which may appear in spots or be spread over the body. There is usually swelling of the joints and the lymph glands. The mucous membranes become congested and may bleed. The treatment consists in easing the pains by cold sponging or the ice-bag; hypodermic use of morphin may be necessary. Careful attention should be given to the joints, and during convalescence massage should be applied.

Dentaphone. A little hollow instrument placed on the teeth to assist hearing.

Dentine. The tissue which forms the body of a tooth.

Dentition. Teething; infants have 20 teeth: 8 incisors in front, 4 canine between, and 8 molars at the back. The incisors are cut first, in the seventh month as a rule; at two years all the teeth should be present. During teething the gums become swollen; the child must be kept from catching cold; diarrhea, convulsions, and rashes must be watched for; the temperature should be taken every evening. (See also *Teeth.*)

Deodorant. A substance that will remove or correct offensive odors, as chlorin, chlorid of lime, quicklime, etc.

Deodorizer. Destroyer of smells; the chief deodorants are chlorid of lime, sulphurous acid, nitrous acid, and iodoform. They are all more or less disinfectants.

Depilatory. An agent for removing superfluous hairs from the body.

Depletion. Act of emptying; bleeding; purging.

Depressant. A medicine which depresses the physiologic action of an organ, such as the heart (cardiac depressant), etc.

Depression. A low or depressed physical or mental condition. In surgery, displacement inward of the skull, often giving rise to pressure on the brain.

Dermatitis. Inflammation of the skin.

Desquamation. Peeling off of the skin. After scarlet fever the period of desquamation is the most infectious, and care must be taken that the cast skin is not allowed to blow about.

Desudation. Excessive sweating.

Detergents. Fluids used for cleansing wounds and ulcers.

Determination. Excessive flow of blood to a part.

Detritus. The waste of tissue, worn away by disorganization.

Development. Growth; progressive variation toward mature or perfected condition.

Diabetes. A disease marked by an excessive flow of saccharine urine. The *treatment* almost entirely consists of attention to diet: sweets, pudding, pastry, potatoes, and bread have to be avoided; meat, fish, eggs, butter, cheese, and green vegetables are allowed. The nurse will have to measure and test urine; the quantity may be as much as 4 or 5 quarts in 24 hours; the specific gravity may be as high as 1040; the urine in diabetes turns Fehling's solution yellowish-brown. *Diabetes insipidus*, characterized by a greatly increased flow of urine of a low specific gravity, associated with a marked degree of thirst. The urine is pale, almost colorless, and with a specific gravity but slightly above that of water. Many of the cases progressively emaciate and finally die of exhaustion. *Diabetes mellitus* (see *Glycosuria*).

Diagnosis. The decision as to the exact nature of an illness, arrived at by studying the symptoms.

Diaphoresis. Perspiration.

Diaphoretics. Agents which increase perspiration.

Diaphragm. The muscle separating the chest from the abdomen.

Diaphysis. The middle part of long bones.

Diarrhea. Frequent loose evacuations of the bowels. Very weakening. Diarrhea should immediately be reported to the doctor, and the evacuations kept for inspection. It is especially dangerous in children, being liable to become chronic. Whenever diarrhea is present it is necessary to give great attention to the diet; see that it is light, easily digestible, and suitable to the age and illness of the patient. Milk and lime-water, and barley-water are alone allowed in serious cases.

Diastase. A ferment which changes starch into dextrose.

Diastole. The dilatation of the heart and arteries; opposite to systole.

Diathesis. Constitutional disposition to certain diseases.

Dicrotic. An apparent double beat of the pulse.

Diet. System of food. As a rule, *full diet* consists of an ample allowance of meat, bread, vegetables, puddings, etc.; *middle diet*, of mutton, fish, bread, milk puddings, and eggs in moderate quantities; *fever*, or "light" diet, of beef-tea, chicken-broth, and milk; no solids.

Digestion. The process of converting the food eaten into chyme and chyle, so that it can be absorbed into the blood.

Digestive. Relating to or favoring digestion. The *digestive* or *gastric juices* are the normal secretions of the glands of the stomach.

Digital. Pertaining to the fingers.

Digitalis. A drug extracted from the foxglove, and used to stimulate the action of the heart. It causes decrease of pulse-rate, and increase of urine. Poison. Marked intermittence of pulse to be immediately reported.

Dilatation. Increase in size, enlargement.

Diluents. Medicines that dilute the secretion of an organ or increase the fluidity of the secretions.

Diphtheria. Infectious inflammation of the throat, with formation of false membrane, which tends to close up the throat and cause suffocation. The earlier symptoms of diphtheria are like those of a heavy cold; the temperature does not run very high. Grayish-white patches appear on the tonsils and on the interior of the throat; this is the *false* membrane. The patient should be isolated, and thorough disinfection of everything used about the patient carried out. The nurse must be careful never to inhale the patient's breath. In severe cases, where suffocation is imminent, tracheotomy or intubation may be performed. Death may be due to blood-poisoning, sudden heart-failure (permit no exertion on the part of the patient), or secondary pneumonia, as well as to suffocation.

Diplopia. Seeing double.

Dipsomania. An irresistible mania for drink. The nurse-attendant in these cases has a hard time; the general health of the patient must be attended to, he must never be allowed to get hungry or thirsty. Strong coffee and salt beef tea should be given frequently.

Director. A grooved surgical instrument used to guide another instrument.

Disarticulation. Amputation at a joint.

Discharge. Flowing out; emission of matter evacuated.

Disinfectants. Agents which destroy disease germs: such as heat, carbolic acid, sulphur, chlorin, etc.

Disinfection. (See *Fumigation*.)

Dislocation. Displacement of a bone out of its socket. An anesthetic is not usually necessary for the operation of reducing a dislocation; all that will be needed will be two or three bandages, two or three long towels, and some powdered starch. Afterward the patient must be kept quiet. *Compound dislocation*, rupture of the coverings of a joint and communicating with the air. *Simple dislocation*, without laceration of surrounding parts.

Disorder. A slight form of disease. *Functional* disorder is an unexplainable disorder in the working of an organ.

Dispensing. The mixing and preparing of drugs sometimes falls to the lot of a nurse; it needs special training.

Dissection. The cutting up of dead bodies for the purpose of study.

Dissolution. A term for death.

Distal Aspect. Aspect away from the centre of the body.

Distention. The state of being stretched or dilated; inflation.

Distortion. A deformity or malformation, acquired or congenital. Also, a writhing or twisting motion, as of the face.

Diuresis. Increased flow of urine.

Diuretics. Medicines which cause an increased flow of the urine.

Dizziness. (See *Vertigo.*)

Donovan's Solution. Contains mercury and arsenic. Give after meals.

Dorsal. Relating to the back.

Dorsum. The back.

Dose. The quantity of a medicine which when taken will produce therapeutic effect.

Douche. A shower of water. Hot douche 112° F., cold douche 50° F.

Dover's Powder. A favorite sedative medicine of which the chief ingredients are ipecacuanha and opium. It increases perspiration.

Drachm. Weight of 60 grains, or in fluid measure 60 minims (about one teaspoonful).

Drainage - tubes. India-rubber tubes of different sizes for inserting in suppurating wounds and sores. When not in use, they should be kept in 1 : 40 carbolic solution in glass jars. When used they are snipped up and down each side, and a safety-pin or some long threads of silk are put at the mouth, to keep the tube from slipping out of sight into the wound.

Drastic. Strong, severe.

Dressing. The cleansing and applying of healing remedies to a wound. A nurse must always have ready the applications for a dressing before the appearance of the surgeon or student who is going to perform it. *Surgical dressings* are those applied in operations (see p. 192).

Dropsy. An unnatural effusion of watery fluid into the tissues or cavities of the body. Dropsy has been said to be a symptom, not a disease, and it frequently sets in toward the end in cases of cancer, heart disease, etc. Dropsical patients need the greatest care in moving them. The operation most likely to be performed is aspiration.

Drown. To deprive of life by immersion in a fluid.

Drug. Any chemical substance (simple or compound) used in the treatment of disease.

Dry Heat. Heat without moisture.

Duct. A canal or tube; usually a passage through which the secretion of a gland empties. The *biliary* ducts are the hepatic, cystic, and communis choledochus ducts of the liver and gall-bladder. *Lactiferous ducts* are the canals of the mammary glands.

Duodenum. The first part of the small intestine, beginning at the stomach.

Dura Mater. A strong membrane lining the interior of the cranium and spinal column.

Dysentery. Inflammation of the intestine, accompanied by bloody evacuations. Absolute rest, attention to diet, and regular administering of remedies. Chills must be avoided. Enemas are frequently ordered. The motions must be counted and kept for inspection, The patient is liable to suffer from weakness and depression.

Dysmenorrhea. Painful or difficult menstruation. It may be dependent on anemia, and disappear with the cure of the latter; or it may be due to causes which require surgical interference. If only occasional, hot fomentations to the abdomen, hot drinks, and a hot bottle to the feet and back may give relief.

Dyspepsia. Indigestion: careful attention to diet. Note the condition of the tongue and the evacuations. Be prepared for irritability and melancholy on the part of the patient.

Dysphagia. Difficulty in swallowing.

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Dysphasia. Difficulty in speaking.

Dysphrasia. Loss of power to speak the words wanted.

Dyspnea. Difficult breathing.

Dystocia. A difficult labor.

Dysuria. Difficult discharge of the urine.

E.

Eau. Water; *eau-de-vie* is ardent spirit.

Ecchondroma. A tumor consisting of cartilage.

Ecchymosis. A bruise; an effusion of blood under the skin.

Eclampsia. Serious puerperal convulsions, with clonic and tonic spasms.

Ecraseur. An instrument for removing piles, malignant growths, etc.

Eczema. An eruption on the skin; not contagious, but very unpleasant, and causing great irritation. The local remedies are often left to the nurse to apply; washing is to be avoided as a rule, and no soap used. To remove crusts, soak with oil, or apply poultices; some dusting-powder will probably be ordered. For the face, ointment, as a rule, is applied on a mask of lint. Children's hands must be gloved or tied to their sides, to prevent scratching. A chill will increase the disease in children.

Edema. Swelling of a dropsical nature; when the finger is pressed on the part affected the flesh pits and does not regain its color and form for some seconds. In case-taking any edema should be noted.

Effervescent. A fizzing medicine.

Effleurage. A massage movement, light and gentle, between stroking and friction, done with the finger tips.

Effusion. A flow of fluid into tissues.

Elaterium. A drastic purge sometimes given in dropsy. May cause nausea.

Elbow-joint. The articulation of the arm and forearm.

Electricity. A natural force generated by chemical action, friction, or magnetism.

Electrode. An instrument attached to the wires of a battery and used to conduct or introduce electricity into the body.

Electuary. A concoction of powders and syrup, making a sweet medicinal draught.

Elephantiasis. A skin disease, causing terrible enlargement of the limb or limbs affected. It is chronic, the skin thickens until it somewhat resembles an elephant's hide.

Elevator. A muscle which raises a limb.

Elixir. A term sometimes applied to certain medicinal spirituous preparations having a sweet taste.

Emaciation. General thinness of the body. Wasting.

Embolism. The obstruction of a blood-vessel by an embolus (usually a blood-clot) brought from another part of the body.

Embrocation. A lotion for rubbing on the body.

Embryo. Term for the fetus before it has quickened.

Emergency. A sudden, pressing, and unforeseen occasion for action. An accident or condition unlooked for, and calling for prompt decision.

Emesis. Vomiting.

Emetic. Any means used to produce vomiting. Tickling the throat with a feather; large draughts of tepid water, salt water, or mustard and water, will produce the desired effect.

Emmenagogue. A medicine which promotes the flow of the menses.

Emollients. Softening and soothing applications or liniments.

Emphysema. Swelling produced by an abnormal collection of air in a part.

Empiricism. Treatment founded on experience only, not on learning.

Emplastrum. A plaster.

Emprosthotonos. Spasms causing the body to bend forward.

Empyema. A collection of pus in one or both of the cavities of the pleura.

Emulsion. A mixture of oil, such as cod-liver oil, with water, by aid of gum, etc.

Enamel. The hard outer coating of the tooth.

Encephalocele. Protrusion of the brain through the skull.

Encephalon. The brain.

Encysted. Tumors contained in a sac or cyst.

Endarteritis. Inflammation of the lining membrane of the arteries.

Endemic. A disease prevalent in a particular locality.

Endocarditis. Inflammation of the lining membrane of the heart. Often occurs after rheumatism or renal disease.

Endocardium. The lining membrane of the heart.

Endometrium. The lining membrane of the uterus.

Endothelium. The lining membrane of blood-vessels, lymphatics, and serous cavities.

Enema. A rectal injection for medicinal or nutritive purposes. The instrument used is commonly a syringe—a bulb from which go two tubes; one tube has an ivory mouthpiece, which is inserted into the anus, the other is put into the fluid to be injected. In administering an enema, cause the patient to lie on the left side with knees drawn up, have the basin containing the enemata on a chair by the bed, oil the mouthpiece of the syringe, and, standing behind the patient, insert it gently: previously the air should have been squeezed out of the syringe and the fluid drawn into it. The injecting should be done slowly and gently. Plural, *enemata* (see pp. 61–66).

Enterectomy. Excision of part of the intestine; a serious operation.

Enteric Fever. (See *Typhoid Fever.*)

Enteritis. Inflammation of the small intestine. A disease accompanied by much pain, and needing careful nursing. No solid food is permitted, and absolute rest in the recumbent position is necessary.

Enterocele. Hernia, consisting of a protrusion of the intestine.

Enterotomy. Opening the peritoneal cavity and raising and opening the distended bowel. Like all forms of intestinal surgery, it is serious, and needs careful nursing.

Entozoa. Parasites living within the body.

Enuresis. Involuntary discharge of urine. Give no liquid near bedtime.

Epidemic. A disease attacking a number of people in the same place at one time. Epidemics are usually accounted for by the disease being either infectious or contagious.

Epidermis. The outermost layer of the skin.

Epigastrium. The region over the stomach.

Epiglottis. The thin flap of cartilage which guards the entrance to the glottis or windpipe.

Epilepsy. A disease of the brain marked by the occurrence of convulsive fits. Perseverance in treatment is the chief hope of cure, hence it behooves nurses or attendants to be very patient and careful. A slight fit is called *petit mal*, a severe fit *grand* or *haut mal*. The fits are often brought on by excitement or any slight ill-health, lack of attention to the bowels, for instance. The nurse must note if the fit commences with a cry, where the convulsions begin, and how they spread, if the thumb is flexed, and how long the fits last. There is nothing to be done for the patient but to put him flat on the floor, unloose tight clothing, put a cork or pencil between the teeth to prevent the tongue being bitten, and otherwise prevent him from injuring himself.

Epiphysis. A process of bone attached by cartilage to the ends of bones, and from which growth takes place.

Epiploön. The omentum, a membranous expansion which floats upon the intestines.

Episiotomy. Incision of labia in difficult parturition.

Epispastics. Agents applied to the skin to produce discharge, such as blisters or vesicatories.

Epistaxis. Bleeding from the nose, apt to become serious in debilitated or anemic persons. Applications of ice-bags to the back of the neck and to the forehead, or plug the nose with lint dipped in vinegar or lemon-juice.

Epithelial Casts. Tube casts with attached kidney epithelium found (by microscopic examination) in the urine in nephritis.

Epithelium. The outermost

bloodless layer of the mucous membrane and the skin.

Ergot. A drug derived from a fungus which grows on rye; it is used especially in labor cases to contract the uterus and arrest hemorrhage. It prolongs the length and force of pains in a paturient uterus.

Ergotin. A form of ergot specially used hypodermatically to arrest bleeding.

Erosion. Ulceration of parts.

Eructation. Flatulency, with extension.

Eruption. A breaking out on the skin.

Erysipelas. Contagious inflammation of the skin, tending to spread, accompanied by fever and pain in the part affected. It is necessary for a surgical nurse to keep watch for erysipelas, though, in these days of antiseptic surgery, it seldom appears. The *symptoms* are redness round the edges of the wound, vomiting, rigors, and a rise of temperature—all this must immediately be reported to the surgeon. The patient and nurse are isolated and great care must be taken to disinfect all articles used. The period of incubation for erysipelas is from three to seven days; on the second or third day after rigor, a diffuse red rash with swelling appears. Constitutional erysipelas of the head and face is not uncommon. Erysipelas contagion produces puerperal fever in parturient women.

Erythema. Non-contagious circumscribed inflammation of the skin. If acute, often followed by rheumatic fever.

Eschar. A dry healing scab on a wound; generally the result of the use of caustic. Also the mortified part in dry gangrene.

Esophagus. The canal which runs from the throat into the stomach.

Essences. Strong solutions of one part volatile oil in four of rectified spirits. Usually given in a few drops on sugar.

Ether. A volatile liquid much used as an anesthetic. It must never be used near an uncovered light, as it is very inflammable. Spirits of *nitrous ether* are diuretic and carminative.

Etherization. Anesthesia or unconsciousness produced by the inhalation of the vapor of ether.

Ethmoid. A bone of the nose, through which the olfactory nerve passes.

Etiology. The science of the causation of disease.

Eucalyptus. An antiseptic much used in catarrhal affections; it is used as an inhalation in phthisis. It is a colorless, oily liquid, with a pungent, resinous smell.

Eustachian Tube. The canal from the throat to the ear.

Eustachian Valve. A fold in the membrane of the right auricle of the heart.

Evacuation. Discharge of excrement from the body. (See *Movements.*)

Eventration. Protrusion of the intestines.

Eversion. Folding outward.

Exacerbation. A return of fever; a paroxysm of disease.

Exanthemata. Diseases accompanied by eruptions or rashes.

Excision. Act of cutting away.

Excoriation. Abrasion of the skin.

Excrescence. An unnatural protruding growth.

Excreta. The urine and feces.

Excretion. The throwing off of waste matter.

Exfoliation. Scaling off of a dead bone or tissue in thin flakes.

Exhaustion. Great loss of vital and nervous power from fatigue or protracted disease.

Exostosis. A bony tumor growing from bone.

Expectant. Treatment which removes obstacles and then watches the course of events without using medicinal remedies.

Expectoration. Secretions from chest coughed up. The nurse must note the quantity and character of the expectoration. In *pneumonia* it is viscid, tenacious, sticks to the sides of the sputum-cup, and is of rusty appearance, or may even be of a prunecolor; in *bronchitis* the expectoration is frothy, abundant, and often streaked with black, and of a greenish-yellow color, from the presence of pus; in *consumption* the expectoration varies from a small quantity of frothy fluid to abundant greenish-yellow offensive phlegm or sputum, often streaked with blood.

Expression. The recognizable manifestation through the facial lineaments or the voice of any subjective feeling.

Expulsion. The act of driving out.

Extension. A certain pull or weight applied to a fractured or dislocated limb to keep it straight.

Extensor. A muscle which extends a part.

Extirpate. To completely remove.

Extracts. Medicinal preparations made by extracting the ingredients of vegetable substances. An *extract* is a *solid* preparation; a *fluid* extract is a *liquid* preparation.

Extra-uterine Gestation. Pregnancy outside the uterus; in the abdominal cavity, for instance.

Extravasation. Escape of fluid from its proper channel into surrounding tissue.

Extremities. The limbs; the terminal end of an organ.

Exudation. Oozing; slow escape of liquid.

Eyeball. The globe of the eye.

Eyes. The organs of vision or sight.

Eye-teeth. The canine teeth (see *Teeth*).

F.

Facial. Relating to the face.

Fahrenheit. The scale of most thermometers used in America; the freezing point is 32°, the normal heat of the human body 98.4°, the boiling point 212° (see *Thermometer*).

Faint. A short swoon. Lay the patient flat, and let him have plenty of fresh air. Consciousness will soon return. Patients are very liable to faint the first time they are allowed up after a long illness, unless the nurse is careful strictly to limit the exertion allowed.

Faintness. (See *Syncope.*)

Fallopian Tubes. Two trumpet-like canals, about 3 inches long, passing from the womb to the ovaries.

Faradism. Electricity generated by induction.

Farinaceous. Containing flour or grain. Farinaceous diet consists of puddings, gruel, bread, etc.; no meat.

Fascia. The membrane which encloses the muscles.

Fauces. The throat, the back of the mouth.

Favus. A contagious cutaneous disease, most common on the scalp. It is marked by a honeycombed scab. The nurse must be careful about disinfection.

Febrifuge. An agent for allaying fever.

Febrile. Relating to fever.

Fecal. Relating to the feces.

Feces. The refuse material expelled from the bowels by the anus.

Fecundation. Impregnation.

Feeble. Lacking strength; weak.

Feeding. *Artificial* feeding is the introduction of food into the body by artificial means, such as the stomach-pump, or in the form of an enema. Also, the nourishing of a child by food other than the mother's milk.

Felon. Whitlow.

Femoral Artery. The artery of the upper leg, from the thigh to the knee.

Femur. The thigh-bone.

Fenestrum. An aperture or foramen, as in certain bones.

Ferrum. Iron. The most important of tonics; to be given after food, because if given on an empty stomach it decomposes the digestive fluid.

Fester. Inflammation, with collection of pus.

Fetal Movements. The muscular movements of the fetus *in utero.*

Fetid. Offensive smelling.

Fetor. Strong unpleasant smell.

Fetus. An unborn child, especially from the fourth month.

Fever. Disease marked by heat of the body, quick pulse, lassitude, and often delirium. The nursing treatment of every fever is rest, freedom from chills, and light nourishing diet.

Fibre. Thread-like structure. *Motor* fibres are centrifugal nerve-fibres exciting contraction of the muscles. *Sensory* nerve-fibres, centripetal fibres conveying sensory impulses to the brain.

Fibrin. Albumin of the blood, which solidifies when exposed to the air and causes coagulation.

Fibula. The small bone on the outer side of the lower leg.

Fimbriæ. The fringe-like processes of the outer extremity of the oviduct.

First Intention. A surgical term for healing of a wound by bringing the edges directly together, so that they unite without the necessity of new granulations to fill in spaces.

Fissure. A term applied to various grooves of the body.

Fistula. Any unnatural passage by which an internal organ or pus-sac communicates with another or with the external air.

Fit. A sudden convulsive attack. The nurse must prevent the patient from injuring himself, and loosen any tight clothing. She must note where the spasms commence, how they spread, and how long the fit lasts.

Flabby. Deficient in firmness.

Flatulence. Wind or gas in the intestines; sometimes causing severe pain, but as a rule, merely discomfort.

Flexion. Being bent; the opposite to extension.

Flexor. A muscle which causes flexion.

Floccillation. Carphology. Picking the bed-clothes: a grave symptom in acute diseases.

Flooding. Excessive bleeding from the uterus during parturition. (See *Post-partum*.)

Flow. (See *Menstruation*.)

Fluor Albus. White discharge from the vagina or uterus.

Flush. A temporary redness, as the *hectic* flush.

Flux. A flow of liquid.

Follicle. A minute bag containing some secretion. (See *Graafian*.)

Fomentation. Flannel wrung out in some hot fluid and applied for the alleviation of pain. The flannel should be put in a basin and boiling water poured over it, then lift it quickly into the centre of a towel; catch the towel with one end in each hand, twist opposite ways till the flannel is well wrung out, apply as hot as can be borne, and cover with a dry flannel bandage. For a *turpentine* fomentation, sprinkle 20 to 30 drops of turpentine on the flannel immediately before application; for an *opium* fomentation, sprinkle 15 to 20 drops of laudanum on in the same way. Fomentations need frequent changing, every hour or oftener.

Fontanelle. A soft space in the skull bone of an infant before the skull has hardened.

Foramen. A hole; an opening into the body. For instance, the *foramen ovale*, which separates the left and right auricles in the fetus.

Forceps. Surgical pincers used for lifting and moving instead of using the fingers. *Dressing forceps* are shaped like scissors, with blunt, flat points; *dissecting forceps* are shaped like sugar-tongs. Every nurse should carry forceps, and use them; they need to be kept clean, and to be disinfected always before and after use. *Obstetric forceps* are of different sizes and shapes, and are used for grasping the head of the fetus in difficult labor; there are also many other kinds of forceps.

Forearm. That part of the arm between the wrist and the elbow.

Forehead. That part of the face between the orbits of the eyes, the hair above, and the temples.

Formula. A prescription.

Fossa. Little depressions of the body, such as *fossa lacrymalis*, the hollow of the frontal bone, which holds the lachrymal gland.

Fourchette. The commissure joining the labia majora of the pudendum posteriorly.

Fracture. A broken bone: *symptoms*—crepitus, limb shortened and helpless, pain. Keep the limb at rest in a natural position between sand-bags. For setting a fracture, an anesthetic is usually given. Perfect rest is the only cure, and the nurse must see that it is carried out. *Colles fracture*, a fracture of the wrist; *comminuted fracture*, when the bone is splintered; *complicated fracture*, some injury is added to the fracture: thus fractured ribs may be complicated by injury to the lungs; *compound fracture*, a fracture with an open wound from the skin to the broken bone; *green-stick*, one side of the bone being broken, the other bent; *impacted*, the end of one fragment being firmly driven into the tissue of the other; *simple*, one in which the seat of fracture does not communicate with the air.

Friction. Medical rubbing or shampooing. Should always be done from the extremities toward the heart.

Frontal. Relating to the forehead.

Frost-bite. Injury to the skin or a part of the body from extreme cold.

Fuller's Earth. Chiefly consists of silica, alumina, and oxid of iron. Very absorbent.

Fumigation. The private nurse has often to fumigate, or expose to disinfecting vapors, a room in which an infectious case has been nursed. When the room is vacated a fire should be lighted in the fireplace, and all papers, old linen, old clothes, and other objects of small value, burnt there, if they have been contaminated. The chimney, windows, and other openings should then be shut, and in the middle of the room containing the furniture and bedding a pan with some live coals should be placed. On the coals should be put a layer of sand, and on that a quantity of sulphur (broken into pieces), proportionate to the size of the room, 1 lb. to 1000 cubic ft. The door should then be shut. After being hermetically closed and exposed to the sulphur fumes for twenty-four hours, the room should be fully aired by opening the windows, and must not be again occupied for at least a week after being disinfected (see p. 258). During recent years formalin disinfection, by means of special apparatus, has almost entirely displaced sulphur fumigation.

Function. The special work of an organ.

Fundament. The anus.

Fundus. The base of an organ, usually applied to the uterus.

Fungus. A microscopic, parasitic, vegetable growth.

Funis. The umbilical cord.

Fur. An unnatural coating of the tongue, common in fevers.

Furunculus. A little boil containing a central core.

G.

Galactia. Disorder of the milk-secretion.

Galactorrhea. Excess of milk.

Gall. A bitter secretion formed by the liver.

Gall-bladder. The membranous sac which holds the bile.

Gall-ducts. Ducts conveying the bile.

Gall-stone. Calculus in the gall-bladder. If the stone passes into the duct and thence to the duodenum, there is great pain. Local application of heat and injections of morphia are usual. Diet important.

Gallic Acid. An astringent; used to control bleeding and lessen the night-sweats of phthisis.

Galvanism. Electricity generated by means of a battery of cells with carbon and zinc plates in acid solution. Practically the application of continuous currents as distinct from alternate currents.

Ganglion. An enlargement of a nerve forming a semi-independent nerve-centre. Also swelling of the sheath of a tendon.

Gangrene. Death of a part. It begins with discoloration of one of the extremities, generally the toes, and gradually becomes mortification. The hardening of the arteries and consequent defective circulation of a part in old people sometimes brings on a form of dry gangrene called "senile gangrene." *Moist* gangrene is a form with abundant serous exudation and rapid decomposition. The nurse's duty is strict cleanliness; the only cure is amputation. Fresh air and nourishing food are necessary. Raise the limb. Keep the part warm by the aid of hot-water bottles.

Gargle. A liquid medicine for washing out the throat.

Garrot. An improvised tourniquet, consisting of a handkerchief, a stone, and a stick.

Gastralgia. Unpleasant burning feeling or acute pain in the stomach due to indigestion.

Gastric. Relating to the stomach.

Gastric Fever. A term loosely used to indicate fever associated with abdominal symptoms. Usually typhoid fever.

Gastric Juice. The digestive fluid of the stomach.

Gastritis. Inflammation of the stomach.

Gastrohysterotomy. Opening into the uterus through the abdomen. Porro-Cesarean operation.

Gastrostomy. Making an artificial mouth into the stomach.

Gauze. Fine tarlatan used as a surgical dressing, and generally impregnated with some antiseptic. *Carbolic gauze*, unbleached tarlatan impregnated with carbolic acid, resin, and paraffin; usually prepared in lengths of 6 yds. by 1 yd. and used in antiseptic dressings. Should be kept in a tightly-closed tin box.

Gavage. Feeding by means of a stomach-tube.

Gelsemium. A nerve-soothing drug prescribed in tetanus, mania, and nervous affections. Contracts the pupil. Watch for frontal headache or double vision. Poison.

Generation. Production of human beings.

Genitalia. The outer generative organs, or privates.

Gentian. A useful drug, very bitter, acts as a stomachic tonic.

Genu Valgum. Knock-knee.

Germ. A microbe or bacterium.

Gestation. The period of carrying the young in the womb.

Giddiness. A sensation of unsteadiness of the body, usually accompanied with more or less nausea. (See *Vertigo.*)

Ginger. Carminative and stimulant.

Gingivitis. Inflammation of the gums.

Glanders. A febrile disease with inflammation of the nasal cavities, communicable to man from the horse, ass, and mule. Often fatal.

Glands. Small bodies occurring in different parts of the body and having the power of secretion. *Concatenate* glands of the neck, *Cowper's* glands of the prostate, *Brunner's* glands of the duodenum, etc. *Cowper's glands* are two small glands like peas above the bulb of the urethra; *Lachrymal glands* are those which secrete the tears; *Salivary glands* are three glands at the back of the lower jaw.

Glans. Bulbous extremity of the penis and clitoris.

Glauber's Salt. Sulphate of soda, a purge.

Glaucoma. A disease of the eyeball characterized by increased tension within it.

Glenoid. A cavity; a term applied to the socket of the shoulder-joint and similar parts.

Globule. A very little pill.

Globulin. A form of proteid matter.

Globus Hystericus. Hysterical choking feeling, as of a ball in the throat.

Glonoin. Nitroglycerin; used as a drug to accelerate the heart's action in angina pectoris, shock, etc.

Glossitis. Inflammation of the tongue.

Glottis. The opening into the windpipe.

Glycerin. A sweet, colorless liquid, obtained from oils and fats. Used as an emollient ointment. Also in enemata as an aperient; one teaspoonful is injected from a special piston-syringe.

Glycosuria. Grape-sugar or glucose in the urine, a symptom in diabetes. Sometimes a transitory state only.

Gnathic. Relating to the jaw or cheek.

Goiter. Enlargement of the thyroid gland of the throat, common in Switzerland, where it is often associated with cretinism.

Gonorrhea. Inflammation of the genitals and flow of pus. *Contagious:* the nurse must be very careful to burn all soiled dressings, and always to use forceps. If the patient is a female, frequent baths and hot douches of warm water may be ordered. Inflammation of the external genitals must be watched for. (See p. 257.)

Gorget. A blunt grooved instrument used in operations in stone.

Gouge. A grooved instrument of steel or bone used to scoop out dead bone.

Gout. A disease marked by attacks of acute pain and swelling of the joints, usually of the big toe or the thumb. Chalky concretions form about the joints in time. The nurse has to attend to the local applications (often tincture of opium, iodid of potassium, or carbonate of lithia, applied on charpie and covered with oil-silk); she has also to see to the diet, for dyspepsia generally accompanies gout. Hot baths followed by passive manipulation may be ordered. The urine must be measured and tested, the presence of lithates being specially watched for.

Graafian Follicles. Small vesicles found near the surface of the ovary.

Grafting. Snipping minute portions of the skin from a healthy part and planting them on some sore or wound where there is no skin, that they may grow there and help the wound to heal over.

Gramme. Unit of metric weight, 15.5 grains.

Granulation. The process by which tiny granules of flesh form on the face of a wound during its healing. This is healing by *second intention* (*q. v.*).

Granule. Small particle or grain.

Grape-sugar. Glucose.

Gravel. A popular term for stone of the bladder.

Gravid. Term applied to the womb during gestation.

Gray Matter. The gray substance of the brain.

Groin. The depression between the thigh and the abdomen.

Gruel. A decoction made of oatmeal, corn-meal, etc.

Guaiacum. A drug used as an alterative.

Gurgling. Sound of bubbling heard in a lung cavity by means of the stethoscope, and heard also upon palpating the abdomen in certain conditions, such as typhoid fever, in which the bowel is distended with gas and contains fluid feces. It is caused by gas passing through fluid.

Gutta. A drop or minim.

Gynecologist. A physician who is a specialist in the treatment of diseases peculiar to women.

Gynecology. The study of the diseases special to women.

H.

Habit. That condition or quality one naturally possesses or acquires.

Hair. The hirsute appendage of the skin. Each hair consists of a bulb and a shaft.

Hair-follicle. Little pit in the skin in which the root of the hair is fixed.

Hallucinations. Imaginary appearances, the fault of disease of the brain.

Hamamelis. Witch-hazel, prescribed for piles, diarrhea, and bleeding from various parts.

Harelip. A congenital slit in the upper lip, sometimes double, and then consisting of two slits. The child is generally operated on very young, and the slit strapped up by specially cut strapping. It is most necessary to prevent the child crying, and to feed it with great care, or the slit may open again. Hare-lip is frequently associated with *cleft palate* (which see).

Hartshorn. Ammonia; ordinary smelling-salts is a carbonate of ammonia, and in that form is generally called "hartshorn." Poison.

Haversian Canals. The minute canals which permeate bone.

Hay Fever. Attacks of paroxysmal sneezing supposed to be caused by the pollen of plants irritating the nose; it occurs late in the summer.

Inhalations of iodids and antiseptics is the usual local treatment. A respirator may be worn with advantage. Sea-bathing and tonics may be ordered.

Headache. Pain in the head, especial in the frontal region. *Sick* and *bilious* headaches are due to disorders of the digestive system; headaches at the *vertex*, to cerebral troubles; and *occipital* headache to anemia.

Healing. (See *Union.*)

Heart. The muscular organ which pumps the blood through the body. The heart is situated directly behind the breast-bone, with the apex, or small end, pointing to the left under the left breast All heart cases need the most incessant care and unbroken quiet, as the slightest movement or excitement may be attended with serious consequences.

Heartburn. Uneasiness and burning in the stomach and cardiac region in indigestion; a gnawing sensation.

Heart-failure. Failure of the heart to act.

Heat. Body-heat indicates a temperature of above 98.6° F.

Hectic. The sudden feverish flushes of consumption and other protracted wasting diseases. The fever is not always present, usually coming on at night, when the patient is bathed in perspiration and is very weak. By careful changing of linen, gentle sponging, and arrangement of bed, much can be done by the nurse to ease the distress of the patient.

Heel-bone. The largest bone of the foot, the calcaneum.

Hellebore. A poisonous drug, used as a depressant. *Antidote* for overdose, stimulants.

Hematemesis. Vomiting blood from the stomach. Dark-colored and often in clots. Recumbent position, ice to suck, notice the color of stools.

Hematin. A decomposition product of hemoglobin (the coloring matter of the blood).

Hematocele. A tumor containing extravasated blood.

Hematoma. A blood-tumor.

Hematosalpinx. Distention of the Fallopian tube with blood.

Hematoxylon. Logwood; a disinfectant, chiefly used for sores.

Hematuria. Blood in the urine; may be a sign of malignant disease of the kidney. Urine looks smoky or claret-colored. Rest; ice-bags to the back. Astringents will probably be given internally.

Hemicrania. Headache on one side of the head only.

Hemiplegia. Paralysis of one side of the body. Watch for constipation.

Hemispheres. The two sides of the brain.

Hemoglobin. The coloring matter of red blood-corpuscles.

Hemoptysis. Coughing up blood from the lungs. Frothy, and of a bright red color. Rest, no talking, ice to suck. All food must be cold, no stimulants. Watch the temperature and pulse.

Hemorrhage. A flow of blood.

Hemorrhoids. Piles, small tumors about the anus. Usually the result of constipation or pregnancy. Regularity of the bowels must be secured. Bleeding piles may necessitate injections of iced water or mild astringents.

Hemostatic. An agent to arrest a flow of blood.

Hepatic. Relating to the liver.

Hepatica. Medicines acting on the liver.

Hepatitis. Inflammation of the liver.

Hereditary. Transmitted from one's parents.

Hermaphrodite. One whose generative organs are neither entirely male nor female.

Hernia. Commonly called "rupture;" protrusion of any of the internal organs through the surrounding tissues, most common in the case of the bowels. *Inguinal hernia* is through both abdominal rings; *direct* through the external ring, and *oblique* through the internal ring. *Strangulated*, so tightly constricted that gangrene results if operation does not relieve. *Scrotal* is descending into the scrotum, and *umbilical* is hernia at the navel. Taxis is the usual means of returning the protruded part if possible, and a truss is then worn to prevent the rupture occurring again. A rupture not amenable to taxis is termed *irreducible.*

Herniotomy. Dividing the constricting band of a strangulated hernia and returning the protruding part. The patient, after the operation, must be kept recumbent; no food must be given save the light diet ordered.

Heroic. Severe treatment of the kill-or-cure type.

Herpes. Acute inflammation of the skin, with eruption. *Herpes zoster* shows in rings of vesicles around the body, and is usually called "shingles"; *circinatus,* chiefly about the head, is called "ring-worm." Local treatment consists of protection from irritation, a dusting-powder, or a mild astringent lotion.

Hiccough. A short, noisy, involuntary inspiration, caused by a spasmodic contraction of the diaphragm followed by a sudden closure of the glottis. A grave symptom when occurring in a serious case of illness.

Hip-joint Disease. Inflammation of the hip-joint, most common in children, and extremely painful. The child is usually put in splints, and extension applied to prevent the painful jerking of the inflamed joint. The nurse's duty is to avoid any jarring or movement of the patient, to keep the bed fresh and sweet, and the general health good, and to be very careful in lifting the patient, and to move slowly and gently. Abscesses often accompany hip-joint disease.

Hirsute. Hairy.

Histology. Science of the minute tissues of the body.

Homeopathy. Medicine worked on the system of like cures like. Started by Hahnemann. Homeopathic medicines are mostly given in infinitesimal doses.

Hookworm Disease. A disease of the Southern United States with symptoms that resemble anemia, caused by the presence in the intestine of a worm, *Uncinaria* or *Anchylostoma,* which sucks the blood from the intestinal walls.

Hordeolum. A stye.

Hot-water Bag. A rubber bag in which hot water of any degree can be introduced for topical application. *Hot-water bottle* answers the same purpose.

Humerus. The bone of the upper arm.

Humor. Any fluid of the body other than the blood.

Hydragogue. A medicine which helps the discharge of water from the system.

Hydrargyria. Symptoms due to protracted use or too large doses of mercury.

Hydrarthrosis. Accumulation of fluid in a joint, most common in the knee; white swelling.

Hydrastis. A drug procured from the plant of Golden Seal, and used as a stomachic tonic, and as a local application for sores and ulcers.

Hydremia. Excess of water in the blood.

Hydrocele. Watery tumor in the scrotum. In infants, acupuncture may be performed; in adults, the treatment is usually injection, with a stimulating fluid, or excision.

Hydrocephalus. Water on the brain; a disease, most common in children, that causes the head to swell to an enormous size. The victim is usually idiotic.

Hydrocyanic Acid. The most violent poison known. In small doses a local sedative, allays irritation. Also antispasmodic. (See *Prussic Acid.*)

Hydroma. Watery swelling of a limb; a watery tumor.

Hydrometra. Accumulation of water in the womb.

Hydropathic. Relating to cure by means of water; by baths; and by the absence of alcohol as a drink.

Hydrophobia. Madness of an acute form, contracted by the bite of a rabid dog. Tranquillity is of the greatest importance, and the nurse may do much to secure this and allay the terrible fears of the patient. Keep the room dark and quiet. The saliva of a hydrophobic patient is supposed to be capable of conveying infection, so a nurse must be careful on this point.

Hydrosalpinx. Inflammation of the Fallopian tube, with the formation of fluid in the tube.

Hydrotherapeutics. The water-cure from a scientific standpoint.

Hydrothorax. Fluid in the cavity of the chest.

Hygiene. The science of the preservation of health by means of attention to sanitary surroundings and habits.

Hymen. A fold of membrane at the entrance to the vagina.

Hyoid. The name of a bone shaped like a V, at the root of the tongue.

Hyoscyamus. Henbane, a poisonous antispasmodic and narcotic. Enlarges the pupil of the eye. *Antidotes*, emetic of sulphate of zinc, ammonia, and stimulants.

Hyperemia. Excess of blood in a part.

Hyperesthesia. Excessive sensibility in a part.

Hyperidrosis. Excess of perspiration.

Hyperinosis. Excess of fibrin in the blood.

Hyperplasia. Excessive growth of tissue.

Hyperpyrexia. Excess of fever, shown by a very high temperature. Cold baths (temperature 65°) or cold packs with ice-water are often used to reduce the temperature; quinin, salicylic acid, and other drugs are sometimes given to reduce the temperature. (See *Pack*.)

Hypertrophy. Excessive growth of a part; it is called *false* when caused by a deposit within the part and not by the general growth. Counter-irritants and stimulants, such as iodin, are sometimes applied locally.

Hypnone. A colorless, pungent fluid, used rarely as a soporific.

Hypnotic. Agent for causing sleep.

Hypnotism. State of unconsciousness caused by straining the eyes to look at some bright object; a form of mesmerism.

Hypochondriasis. Slight melancholia. The chief symptom is mental distress about the health, and delusions that the patient is the victim of many diseases. The attention should be distracted as much as possible.

Hypodermatic. Under the skin; a term applied to injections given under the skin by means of a hypodermic syringe. The injection is usually given in the fleshy part of the chest, thigh, abdomen, or arm. This syringe is marked in minims or drops, and is fitted with a fine hollow needle. In giving an injection, pinch up a piece of the skin with the left hand; hold the syringe between the thumb and middle finger of the right hand, with the first finger on the piston. Run the needle into and under the piece of pinched-up skin; slowly and steadily press down the piston; withdraw the needle gently and press a finger on the puncture for a moment to prevent the return of the fluid. The syringe must be kept perfectly clean; a bristle kept in the needle will keep it from getting clogged with dust, etc. All drugs used as hypodermatics are highly concentrated, and many of them, such as morphia, atropia, etc., are poisonous. One-fourth of a grain of morphia is the hypodermatic most commonly ordered.

Hypodermoclysis. Subcutaneous injection, usually of normal saline infusion, to supply blood lost or to dilute poisons, etc.

Hypogastric. Term applied to the region of the abdomen just below the umbilicus.

Hypoglossal. The controlling nerve of the tongue, situated under it toward the back.

Hysteralgia. Pain in the womb.

Hysterectomy. Complete or partial removal of the womb, either through the abdomen or the vagina.

Hysteria. A nervous disease marked by convulsive seizures, and very often by dislike to food, painful impressions, and untruthfulness. The nursing of these cases is very trying, and can only be successfully carried on if the patient is removed from her usual surroundings, and her family kept at a distance. Infinite patience, and persistent cheerfulness mingled with a certain amount of sympathy, may work wonders. A good nurse will soon persuade a patient who has fasted for months to take food naturally again. Terrible weakness and even paralysis are brought on by hysteria.

Hysterics. A term vulgarly applied to screaming and crying fits in women, who cannot or will not control their emotions.

Hysterocele. Hernia of the womb.

Hysteroscope. Mirror for reflecting light in examining a wound.

Hysterotomy. Cesarean section, opening into the womb. The instrument used is called a "hysterotome."

I.

Ice-bag. A bag of waterproof material filled with ice for application to any part of the body.

Ichor. The thin colorless discharge from ulcers and other sores.

Icterus. Jaundice: a yellow discoloration of the skin, caused by absorption of bile into the blood.

Idiocy. Mental weakness, which dates from birth; feeble-mindedness. Few know how much can be done with idiot children by patience. The kindergarten method of teaching them is admirable. Physical training forms an important part of the treatment. A nurse who can secure the touching devotion of an idiot child will be able to cure him of all dirty habits, and even train his mental faculties to a varying degree. An idiot child should be placed in a home.

Idiopathic. A morbid condition arising primarily, and not following on any disease or accident.

Idiosyncrasy. An individual peculiarity in regard to the action of certain drugs, their action and effect being entirely different to what is expected.

Ileo-cecal Valve. Valve at the junction of the large and small intestine.

Ileum. The lower portion of the small intestine.

Iliac Arteries. There are five iliac arteries: 1. *Circumflex*, arising from the external iliac; 2. *common*, the continuation of the abdominal aorta, dividing into (3) the *external*, and (4) the *internal* iliac. The bifurcation is about at the last lumbar vertebra. The external iliac becomes the *femoral* after passing under Poupart's ligament. The branches of the internal iliac supply nearly all the pelvic organs.

Iliac Region. The region containing the cecum, vermiform appendix, and some coils of the small intestine.

Ilium. The shaft of the haunch-bone.

Illusion. A deceptive mental impression.

Immunity. Exemption from disease by vaccination or by some analogous procedure, or by previous illness.

Impaction. State of being wedged in.

Impetigo. A skin rash of an acute kind, chiefly seen in weakly women and children. Nutritive diet, and locally zinc ointment, will probably be ordered.

Impregnation. Act of rendering pregnant.

Improvise. To do or to perform anything on the spur of the moment for a special occasion; to contrive.

Impulse of the Heart. Sensation of a stroke felt on placing the hand on the heart, occurring as the ventricles contract.

Inanition. Exhaustion from want of food.

Incarcerated. Applied to a hernia which cannot be reduced.

Incision. Act of cutting into with a sharp instrument.

Incisors. The eight front teeth.

Incompressible. A full pulse, the beat of which cannot be arrested by pressure.

Incontinence. Inability to retain the evacuations of the bladder or of the bowels. Incontinence of urine is often a disease of childhood. Much depends on the patience and firmness of the nurse in training in good habits. (See *Enuresis*.)

Incubation. The period between the implanting of the disease germs and the development of the symptoms.

Incubator. A sort of glass-covered box warmed by hot-water cans, in which premature infants, born at the sixth or seventh month, are kept. The child is swathed in cotton, and never taken out of the box except to change the diaper. Great care is necessary to keep the box at the ordered temperature.

Incus. A small anvil-shaped bone of the inner ear.

Indigestion. Failure of the digestive powers; generally accompanied by morbid appetite and mental irritation.

Indolent. A term applied to a painless sore which is slow to heal.

Induration. The process of hardening.

Inertia. Sluggishness; applied to the womb when it will not contract.

Infant. A new-born child; a male should weigh at birth 7½ lbs., a female 7 lbs.; it should increase 6 to 7 ounces in weight weekly.

Infection. The communication of disease germs by any means. It is particularly the nurse's duty in infectious cases to prevent the spread of the disease to others by thorough disinfection.

Inferior Vena Cava. The chief vein of the lower part of the trunk of the body.

Infiltration. An effusion of fluid into the connective tissue.

Inflammation. A diseased state marked by heat, redness, swelling, pain, and fever; it begins with congestion of the parts, and possibly may go on to suppuration or mortification. The Greek term for inflammation is "itis"; hence we get glossitis, inflammation of the tongue; peritonitis, inflammation of the peritoneum; and so on.

Inflation. Blown out or expanded by air or gas.

Influenza. Epidemic catarrhal fever.

Infundibulum. A term applied to several funnel-shaped organs of the body.

Infusum. An infusion: prepared by pouring boiling water on a drug, letting it stand and then straining.

Ingesta. Food taken into the body through the mouth.

Inguinal. The region at the lowest part of the abdomen on either side of the symphysis pubis.

Inhalation. Act of breathing in vapor or fumes into the mouth, a form of treatment frequently ordered in disorders of the throat or chest. The ordinary inhaler consists of a vessel fitted with a mouth-piece coming out of the lid; the hot water and the medicament ordered are put in the vessel and the patient takes the mouth-piece in his mouth and inspires the vapor which rises through it. A teapot makes a very good inhaler, the patient keeping the spout in his mouth.

Inhibition. The arrest of some activity by the restraining influence of a nerve-centre.

Injection. A watery or other solution thrown into the vessels, beneath the skin, or into any cavity of the body.

Innominate. Name of the large artery of the body proceeding from the aorta.

Innominatum. The pelvic bone.

Inoculation. The injecting of diseased fluid from the body of one creature into the body of another, as calf lymph is used to vaccinate children.

Insanity. Madness; disease of the brain causing loss of reason. The four principal types of the affection are melancholia, mania, delusional insanity, and dementia. (See *Puerperal mania.*) The nurse must never argue with an insane patient; she must watch and be patient; no matter what violence she suffers, she must never strike the patient back again. In restraining a mad person, catch hold of the garments, not the limbs. The nurse who knows no fear, never loses her self-control, and is ever watchful, stands in no danger from even the most violent patient.

Insertion. The attachment of a muscle to the part it moves.

Insomnia. Sleeplessness; often a troublesome complication during convalescence.

Inspiration. Drawing in the breath.

Instillation. Pouring in drop by drop.

Instrument. Any mechanical device or tool used in operation or treatment. Surgical instruments should be immersed in 1:40 carbolic solution ten minutes before the operation; directly after the operation all hollow instruments should be taken to pieces, cleansed with a nail-brush, put together, and laid away in their cases.

Insufflation. Blowing air, gas, or vapor, or any finely divided substance into a cavity or on a surface of the body.

Insulation. State of a body surrounded by non-conductors of electricity.

Integument. The skin.

Intestines. The alimentary canal from the stomach to the anus (see p. 320). Intestinal obstruction arises from various causes, such as hardened feces.

Intolerance. Constitutional incapacity to endure or benefit by a remedial agent.

Intoxication. The effect of the excessive use or an overdose of alcoholic liquor; in a wider sense, any poisoning.

Intravenous. Denoting within or into the veins. An intravenous injection is the introduction into the vein of a saline solution or other liquid.

Intubation. Passing a tube down the throat and leaving it there; an operation sometimes performed on children with diphtheria instead of tracheotomy. It needs careful nursing, for the tube may be coughed up or may be swallowed.

Intussusception. The reception of one part of the intestine into another; common in children and causing obstruction of the bowels, and calling for prompt treatment.

Inunction. Rubbing in of medicines with a view to effect absorption. Generally resorted to when the stomach will not tolerate the medicine.

Invagination. Another term for intussusception.

Inversio Uteri. Inversion of the womb, so that it is turned inside out, and generally falls into the vagina.

Involuntary. A term applied to certain motions and functions of the various organs of the body that are not controlled by, or are not dependent on, the will.

Involution. The shrinking of the womb after labor. The womb, from weighing a pound and a half at labor, shrinks in eight weeks to the weight of an ounce and a half. Any chill may arrest this involution and cause great mischief.

Iodin. A poisonous element obtained from the ashes of seaweed. Very useful as an antiseptic. The solution is painted on the skin to cause absorption. The tincture is given internally for scrofula, etc. Report at once any catarrhal symptoms.

Iodoform. A form of iodin consisting of yellow crystals or a primrose-colored powder. It possesses a strong and lasting odor. It is largely used to dust on wounds, its action being antiseptic and stimulating. Iodoform gauze, wool, and lint are employed. The symptoms of poisoning from iodoform are vomiting, hallucinations, red skin rash, and dusky urine.

Iodol. Ointment containing iodin, and having the same properties as iodoform, without the strong smell.

Ipecacuanha. A prompt emetic, secured from the root of a Brazilian plant. Greatly used for children in cases of croup and whooping-cough. In small doses it is a stomachic and expectorant; when used as an emetic, some 60 drops are given.

Iris. The colored circle surrounding the pupil of the eye.

Iritis. Inflammation of the iris.

Iron. When ordered as a medicine, should be given after food and through a tube. Dialyzed iron does not injure teeth. Iron causes black stools.

Irreducible. That which is incapable of being returned to its proper place by manipulation.

Irrigation. Constant application of a lotion to a part.

Irritant. A drug which causes excitation and stimulates action.

Irritation. An inflamed state; also, the stimulus necessary to the performance of the functions of an organ.

Ischium. The hip-bone; the back part of the os innominatum.

Isolation. Set apart; an isolation room or ward is one kept for contagious or infectious diseases, and the nurse has to follow strict rules to prevent the spread of the disease.

A sheet hung over the door of such a room, and kept saturated with carbolic or some other disinfectant, to prevent the disease germs that are in the air getting out at the door and into other parts of the building.

Itch. A skin eruption. (See *Scabies*.)

J.

Jaborandi. A drug containing pilocarpin and jaborin. It increases perspiration and stimulates the heart.

Jalap. A drug which purges rapidly, acting in from two to four hours.

Jaundice. Discoloration of the skin, mucous membranes, and secretions of the body due to obstruction of the biliary passages, and consequent accumulation of bile coloring matters in the blood.

Jejunum. The mid portion of the small intestine.

Joint. Point of union of two bones. (See *Articulation*.)

Jugular. Relating to the neck.

K.

Keloid. A connective-tissue growth of the skin.

Keratitis. Inflammation of the cornea of the eye.

Kidneys. Two organs in the region of the hollow of the back which secrete the urine. In all diseases of the kidneys, the nurse has to measure and test the urine.

Kilogramme. One thousand grammes, equal to 2.2 pounds avoirdupois.

Kino. An astringent.

Knock-knee. The inward curving of the knee.

Koumyss. Fermented mare's milk; nutritive and easily digested. Given in cases of wasting. (See p. 358.)

Kyphosis. Hump-back deformity (curvature) of the spine.

L.

Labial. Relating to the lips.

Labia Majora. Two large folds at the mouth of the pudendum; called also the "labia pudendi majus."

Labia Minora. Two smaller folds within the majora; called also the "nymphæ."

Labor. The progress of the birth of a child. There are three stages. (1) The dilatation of the mouth of the womb. (2) The passage of the fetus through the canal and its birth. (3) From the birth of the child to the coming away of the placenta. *Premature labor* is the birth of a child after the seventh month, but before full time.

Labor-pains. The pains of, or the contraction of, the uterus during labor. *False* labor-pains are irregular and short, resembling colic, and occur with a certain regularity.

Labyrinth. The internal ear, consisting of a series of cavities.

Lacerated. A lacerated wound is one with torn or irregular edges; not clean-cut.

Lachrymal. Relating to the tears and the glands which secrete them. The lachrymal or nasal *duct* conveys the tears from the lachrymal sac into the inferior meatus of the nose.

Lachrymation. Excess of tears.

Lactagogue. Drug for inducing milk-secretion.

Lactation. The process or period of sucking.

Lacteals. The lymphatic vessels, which convey the chyle from the intestinal canal.

Lactiferous Ducts. The canals of the mammary gland.

Lactose or **Lactin.** Sugar of milk.

La Grippe. (See *Influenza*.)

Lancet. Surgical knife, with point and two edges, sharp.

Lancinating. An adjective applied to sharp cutting pains.

Lanugo. The downy growth or first hair of the fetus.

Laparotomy. Cutting into the abdomen; a serious operation in the removal of a tumor, etc.

Laryngeal. Relating to the larynx.

Laryngismus Stridulus. Spasmodic croup accompanied by a crowing noise; most common in infants. (See *Croup*.)

Laryngitis. Inflammation of the larynx, causing loss of voice. Common in clergymen and public speakers. May be chronic or acute; the latter is serious.

Laryngoscope. A reflector used for examining the throat.

Larynx. The upper part of the windpipe, from which the voice-sounds proceed.

Lassitude. A state of exhaustion or weakness arising from causes other than fatigue.

Latent. Not visible, lying hid for a time.

Lateral. Relating to the side.

Laudanum. Tincture of opium, poison. Given in a few drops it relieves pain and procures sleep; it also arrests diarrhea. Sprinkled on a poultice or fomentation it allays pain. For an overdose the *antidotes* are emetic, external stimulation, walking patient about, artificial respiration.

Laughing-gas. Nitrous-oxid gas, given particularly by dentists to secure short anesthesia.

Laxative. A mild purgative.

Lead. The *acetate* is given in small doses as an astringent. The lotion evaporates rapidly and is cooling. The iodid makes a soothing ointment.

Lead-poisoning. Difficult cases to nurse, owing to the frequent severe colic. Baths and opium fomentations are part of the treatment the nurse may have to look after. The diet is light but nutritive, with plenty of lemonade. Note blue line on gums. Lead-poisoning is common among painters and other lead-workers.

Leech. An aquatic worm used for the local abstraction of blood. Leeches should be kept in a cool place, in a glass jar filled with rain- or river-water. The top of the jar must carefully be covered with muslin. The water should be changed weekly. The part to which a leech is to be applied should be washed and moistened with cool water; put the leech in a small wine-glass or test-tube, and reverse it on the part. If it will not bite, moisten the skin with sugar and water, or scratch the skin gently till the blood comes. When the leech has sucked its fill it drops off; it should then be disposed of by putting it in a very strong solution of salt and water or dry salt, cover the vessel tightly and let the leech remain until dead.

Leiter Apparatus. Coils or tubes of flexible metal designed for application about any part of the body. Cold water is passed through the tubes, thereby reducing the temperature of the parts encased.

Leprosy. A constitutional malignant disease, cutaneous in its earlier stages, but afterward involving both tissue and bone.

Lesion. Any injury or morbid change in the function or texture of an organ.

Lethargy. Unnaturally deep sleep; not quite so decided as coma.

Leucemia. Increase of white corpuscles of the blood.

Leucocytes. White corpuscles of the blood.

Leucomaines. Certain alkaloids developed in living tissue.

Leucorrhea. A whitish discharge from the vagina, commonly called the "whites"; a sign of weakness. Must be reported to the doctor.

Levator. A muscle which lifts up a part.

Lichen. A term for a group of skin diseases in which the striking feature is inflammatory papules.

Licorice Powder. A preparation containing senna; a purge.

Lieberkühn's Glands. Tubular glands of the small intestine.

Ligament. A tough band of fibrous tissue connecting together the bones at the joints.

Ligatures. Threads of silk, wire, catgut, etc., used to tie arteries or sew up parts. The nurse has to see that all ligatures are sterilized and count the number used. Catgut, the most common ligature, may be kept in a solution of carbolic (1 : 10) and cut into lengths of 11 inches when required for use.

Lime, Chlorid of. A deodorant powder.

Lime-water. Used to dilute milk for infants, and generally to counteract acidity. Mixed with equal parts of olive oil, it makes carron oil, a dressing for scalds and burns.

Lingual. Relating to the tongue.

Liniment. A liquid for external application.

Lint. Loosely woven cotton material, having one side smooth and the other side rough. As a rule, the smooth side is applied next the skin. The name "lint" is also given to scraped or unravelled linen, though the proper term for this is "charpie."

Liquor Amnii. The watery fluid in which the fetus floats.

Liquores. Solutions of active substances in water.

Liquor Sanguinis. Liquid portion of the blood.

Listerism. Antiseptic surgery.

Lithemia. An excess of lithic acid in the blood, producing gouty dyspepsia.

Lithia. An alkali, given in gout, etc.

Lithoscope. Instrument for examing the bladder.

Lithotomy. Operation of cutting into a bladder to remove a stone.

Lithotrity. Operation of crushing a stone in the bladder. Nursing treatment similar to that in lithotomy; but the urine must be measured and strained, and all fragments of stone kept for the surgeon's inspection.

Lithuria. Excess of lithic or uric acid and its salts in the urine.

Litmus Paper. Used in testing: acid turns the blue paper red; alkali turns the red paper blue.

Litre. About 1 quart; or 33.81 fluidounces.

Liver. The organ which secretes the bile; it is situated in the abdominal cavity on the right side. A yellow tinge of the skin marks derangement of the liver; the nurse must be careful that her patient gets no chill.

Lobe. Rounded division of an organ.

Lobelia. A drug used as an antispasmodic, and also in enemata. May cause poisoning.

Lochia. The discharge following confinement; it is for two days almost pure blood, then turns reddish-gray, and becomes clear by the ninth day, and then ceases.

Lock-jaw. (See *Tetanus*.)

Locomotor Ataxy. Impaired gait in walking, due to a disease of the spinal cord.

Lordosis. Anterior curvature of the spine.

Lotion. A solution for external use. *Evaporating* lotions are used to procure local coldness. Lead lotion or eau-de-Cologne and water are the commonest.

Lubrication. Making smooth, oily, or slippery.

Lumbago. A rheumatic affection of the loins; painful but not serious. Cold must be avoided. Rubbing in of such liniments as turpentine and chloroform, or aconite, may fall to the nurse's share; or galvanic currents or hot baths.

Lumbar. The region of the loins, right and left of the umbilicus.

Lunar Caustic. Nitrate of silver, used to cauterize wounds, or arrest the growth of proud flesh.

Lungs. The two organs of respiration, situated in the right and left side of the cavity of the chest. For nursing treatment of congestion of the lungs see *Pneumonia*.

Lupuli. Hops; the tincture is a sedative and stimulant.

Lupus. A tuberculous disease of the skin, most common on the face in young people of a consumptive or scrofulous tendency. Nourishing diet.

Luxation. (See *Dislocation*.)

Lying-in. Pertaining to the state of childbirth; parturition.

Lymph. A colorless alkaline fluid found in the lymphatic vessels.

Lymphadenitis. Inflammation of the lymphatic glands. Tonics and nourishing diet.

Lymphatics. Small vessels pervading the body, and containing lymph.

Lysis. Gradual decline of a fever.

M.

Macrocephalous. Very large-headed.

Macrocytes. Abnormally large corpuscles present in the blood in anemia.

Magnesia. A laxative and antacid. The sulphate (Epsom salt) is a powerful purge.

Malaria. An infectious disease

due to the plasmodium of malaria and transmitted by mosquitoes. (See p. 251.)

Malignant. An adjective applied to very virulent and dangerous forms of disease which run a more rapid course than the milder forms.

Malignant Pustule. Anthrax contracted from cattle, causing gangrenous carbuncle.

Malingering. Shamming sickness.

Malleolus. The projections of the ankle-bone.

Malleus. A little bone of the middle ear.

Malpighian Bodies. Small capillary masses in the structure of the kidney.

Malpresentation. Unusual presentation of the fetus at birth; for instance, feet first.

Malta Fever. An infectious disease seen chiefly along the shores of the Mediterranean, but also in Porto Rico and Manila. The incubation period is from six to ten days. The fever is intermittent, rising and falling through irregular periods. There are neuralgic pains, swelling of the joints, constipation, and anemia. The nursing is the same as that of typhoid fever.

Mammæ. The breasts, or milk-supplying glands.

Mammary. Relating to the breasts.

Mammitis. Inflammation of the breasts, generally occurs during lactation, and points to improved diet.

Mandibulum. The lower jaw.

Manganese. A drug used in skin diseases, in diseases of the kidney, and also to induce menstruation; it is tonic in its action.

Mania-a-potu. Drink madness; delirium tremens (*q. v.*).

Manikin. A small representation of the human body used for teaching purposes.

Manipulation. Rubbing and working with the hands to procure some healing result.

Marasmus. A wasting of the flesh; generally due to tubercular disease of the mesenteric gland.

Massage. Scientific rubbing and manipulation of the body; strengthens the tissues and restores tone generally, acting as mild and thorough exercise for the patient. All movements are from the extremities toward the heart, and consist of kneading, rolling, beating, and rubbing movements. *Effleurage*, *tapotement*, and *pétrissage* (which see) are the terms used for the chief movements, though each school of massage has its own terms and methods.

Masseter. A strong facial muscle which moves the lower jaw.

Masseur. A male practitioner of massage.

Masseuse. A female practitioner of massage.

Mastitis. Inflammation of the breast.

Mastoid. Having the shape of the breast. *Mastoid process*, the protruding part of the temporal bone felt behind the ear.

Materia Medica. The branch of medical science which deals with the character and use of drugs.

Maxilla. The jaw-bone. *Inferior maxillary* is the bone of the lower jaw.

Measles. An eruptive fever common in children. First stage of coryza is infectious; the rash appears on the third day, commencing on neck and face, and lasting three days. Keep the patient in bed and feed with light diet. Watch for bronchitis or inflammation of the eyes or ears. A cough is usual in measles. The period of infection is supposed to last a month. *German measles* is a milder disease, the rash appearing on the fourth day, the period of incubation being ten days. Convalescence is usually rapid and uninterrupted.

Meatus. An opening into a passage. *Meatus urinarius*, the orifice of the urethra.

Meconium. A black, sticky substance voided from the bowels of an infant during the first day or two of its life.

Median. In the middle; an imaginary longitudinal line dividing the body down the centre; mesial.

Medulla Oblongata. The enlarged portion of the spinal cord where it enters the base of the brain at the back of the head.

Medullary. Relating to the marrow.

Melancholia. Morbid depression, a form of insanity. Watch for constipation.

Melena. A discharge of black blood from the bowels.

Membrane. A thin expanding tissue lining the cavities of the body. *False membrane* is a growth caused by inflammation, as in diphtheria. *Mucous membrane*, the continuation of the skin which lines those internal cavities and organs exposed to or communicating with the air.

Meninges. The membranes of the brain.

Meningitis. Inflammation of the membranes of the brain, a serious disease, often ending fatally. Pains in the head are the first symptom, the temperature rises, and delirium sets in. Ice-bags to the head, iodoform applications, and menthol may be ordered. The nurse must take the temperature every four hours, and watch for signs of collapse. Keep the room darkened and absolutely quiet; feed assiduously. There will probably be delirium.

Meningocele. Protrusion of the brain membranes (and often also the brain tissue) through the skull.

Menopause. Change of life; the cessation of the menses, occurring about the forty-fifth year, and generally a somewhat critical period.

Menorrhagia. Excessive flow of the menses; may be due to many causes. Rest, flat on the back, and hot vaginal douches are almost certain to be left to the nurse to see carried out.

Menorrhea. The menstrual flow.

Menses. The menstrual flow.

Menstruation. Monthly discharge from the vagina, common in healthy females between the ages of thirteen and forty-five.

Menthol. A local anodyne, often applied as a plaster.

Mercurialism. Poisoning caused by long use of mercury.

Mercury. An alterative and purgative given hypodermatically and internally in cases of syphilis and in skin diseases. It is a poison in large doses, and the *antidotes* are white of egg and milk and water. (See *Mercurialism.*)

Mesentery. A large portion of the peritoneum to which the small intestines are attached.

Mesmerism. The control of one will over another; the influence being supposed to be obtained by making passes with the hands.

Metabolic. Pertaining to metabolism, the process whereby the tissues are renewed, nourished, and perform their functions.

Metacarpus. The five bones of the hand joining the fingers to the wrist.

Metastasis. Shifting of a disease from one organ to another.

Metatarsus. The five bones of the foot between the ankle and the toes.

Metritis. Inflammation of the womb.

Metrorrhagia. Bleeding from the uterus, other than at the period.

Miasm. A noxious emanation generating in marshy localities; loosely and incorrectly applied to malaria.

Microbes. Germs capable of rapid increase; disease-germs or bacteria.

Micrococci. Spherical microbes.

Micturition. The act of passing urine.

Midriff. The diaphram or muscle which divides the chest from the abdomen.

Midwife. A woman trained to attend confinements, and fulfil all duties so long as the labor is a natural one.

Midwifery. Obstetrics; the knowledge necessary to performing the duties of a midwife.

Migraine. Headache usually known as "sick headache" coming on periodically.

Miliaria. Prickly heat; an affection due to sweat-secretion and want of action of the skin. Sometimes occurs after operations or fevers, and causes rise of temperature.

Minim. The sixtieth part of a fluidrachm; practically one drop.

Miscarriage. Premature birth of an infant, before seventh month.

Mitral Valve. The valve of the heart between the left auricle and the left ventricle.

Modus Operandi. The method of operating.

Molluscum. Skin disease, either *contagiosum*, common in childhood, or *fibrosum*, involving the tissue.

Monoplegia. Paralysis of one limb only.

Monster. A creature born of woman, but so malformed as to have but slight resemblance to a human being.

Mons Veneris. The eminence just over the os pubis in women.

Morbid. Unnatural, diseased.

Moribund. In a dying state.

Morning Sickness. The nausea of pregnant women, occurring chiefly in the early months of gestation.

Morphin. A vegetable alkaloid used as a sedative or anodyne. Injected under the skin, it causes the pain to decrease, and sleep is induced. An overdose causes death, chiefly by paralysis of the muscles of respiration. Stimulation, artificial respiration, and an emetic are the antidotes.

Morphinism. Chronic poisoning from indulgence in morphin.

Mortification. The death of a part, gangrene. Always serious: the nurse must pay great attention to cleanliness, and use disinfectants.

Movements. The evacuations of the bowels, which it is the duty of the nurse to note on her nursing chart in every case, and call the attention of the doctor if they exceed 2 in the 24 hours (except in children), or if the patient goes more than 24 hours without passing any. The nurse should also note if they are streaked with blood, contain mucus, or undigested food, or worms. The color should be noticed; it is like pea-soup in typhoid, light in jaundice, green in mercurialism.

Mucoid. Resembling mucus.

Muco-purulent. Containing mucus mingled with pus.

Mucus. A viscid fluid of the body secreted by the mucous membranes. Mucus in the urine shows as a heavy white sediment, clinging to the bottle when it is shaken.

Multipara. A woman who has had more than one child.

Mumps. Parotiditis. A highly-infectious swelling of the salivary glands. Keep the patient isolated in a warm room; take the temperature night and morning; give light nutritive diet.

Murmur. A sound of the heart or the lungs heard upon auscultation.

Muscle. Strong tissue of the body capable of great contraction, and the means by which the limbs are moved. *Sterno-cleido-mastoid muscle*, a large muscle on each side of the neck; it depresses and rotates the head. *Involuntary muscle*, one not under control of the will.

Mutter. To utter with imperfect articulation, or in a low murmuring tone.

Mycoid. Resembling a fungus.

Mydriatics. Drugs used to dilate the pupil of the eye.

Myocarditis. Inflammation of the muscular tissue of the heart. Often follows acute rheumatism: chances of recovery small.

Myopia. Short-sightedness.

Myotics. Drugs which cause the pupil to contract.

Myrrh. A stimulating and tonic concoction of vegetable origin.

N.

Naboth's Glands. Small glandular bodies situated at the neck of the uterus.

Naphthalin. An antiseptic and expectorant. Given for indigestion.

Narcosis. A state of unconsciousness produced by the use of narcotics.

Narcotic. A medicine which induces sleep.

Nares. The nostrils.

Nasal. Relating to the nose.

Nates. The buttocks.

Nausea. A feeling of sickness, but without actual vomiting.

Navel. The umbilicus, the point of connection of the cord.

Necrosis. Death of a part; usually applid to bone. Where there is dead bone there is always a sore, and pieces of dead bone at times work out through the sore: they should always be kept for the doctor to see.

Negative Pole. That connected with the least oxidizable plate of a galvanic battery.

Nematoidea. Thread-worms.

Neonatorum. Of the new-born.

Neoplasm. A new growth or tumor.

Neoplasty. Any operation which restores lost tissue.

Nephritis. Inflammation of the kidney. Measure and test urine, and watch for renal casts, pus, etc. Put patient between blankets.

Nephrotomy. Cutting into the kidney.

Nerve. A bundle of fibres conveying sensation and volition to and from the organs. *Motor* nerves are those nerves which, passing *from* a nerve-centre, convey an order of motion; the opposite of *sensory* nerves which, passing to a nerve-centre, convey a sensation to the brain. *Optic nerve*, the nerve of sight arising in the occipital lobe and distributed to the retina of the eye. *Sympathetic* nerve is a nerve beside the spine. *Vaso-motor nerves* are of two kinds, those which cause contraction, and those which cause dilation, of vessels.

Nervous. Connected with the nerves; applied to low fevers and similar affections.

Nettle-rash. (See *Urticaria.*)

Neuralgia. Pains of a nerve or nerves; if of the sciatic nerve it is sciatica; or tic-douloureux or hemicrania if of the nerves of the face. Very often neuralgia of one part is a symptom of disease elsewhere, and, therefore, neuralgia should always be watched and reported.

Neurasthenia. Nervous exhaustion. No cases are more trying to a nurse than those where the nerves are disordered. The patient is weak and fanciful, and needs to be treated with sympathy, yet with firmness; the nurse must be cheerful but quiet, patient and forbearing, yet strict in carrying out the doctor's orders.

Neuritis. Inflammation of a nerve.

Neuroses. A class of diseases connected with the nervous system, but arising from no structural cause which can be detected.

Neutral. Neither acid nor alkaline.

Nevus. A birth-mark, a congenital blemish of the skin, often curable if the attention of the physician is called to it in time.

New-born. A designation applied to the child for a short period after its birth.

Nicotinism. Illness caused by over-indulgence in tobacco.

Nictitation. Involuntary winking of the eyelids.

Nightingale. A bed-cloak made out of two yards of flannel (see p. 35).

Nipple. The small eminence in the centre of each breast.

Nipple-shields. Coverings of glass or india-rubber put on the nipples to protect them when they are sore.

Nitrate of Silver. Lunar caustic; used in the form of a pencil to arrest bleeding from a leech-bite or other small wound by its styptic action. Also to check the growth of proud flesh. As an astringent lotion, half a grain to the ounce, it is used to bathe the eyes in cases of ophthalmia. Salt and water is the antidote in case of poisoning.

Nitric Acid. A corrosive fluid used in testing for albumin, etc. Minute doses, prescribed for indigestion, should be given after food, through a tube. If allowed to fall on the finger, it burns the skin. The *antidotes* for poisoning are alkalies, white of egg, and milk.

Nitrite of Amyl. Useful as an inhalation in angina pectoris, and in some cases of poisoning.

Nitrogen. A colorless gas entering largely into the composition of the air we breathe.

Nitroglycerin. An oily liquid, highly explosive, used as a heart-stimulant, and for neuralgia, etc. Sometimes causes headache. Must never be taken near a light. Poison.

Nitrous Oxid. Laughing gas; an anesthetic used for short operations, especially by dentists.

Nodule. A little knob.

Noli-me-tangere. A name given to bad ulcers, especially if on the face, and of syphilitic or cancerous origin. In dressing them, the nurse must certainly be careful to "touch them not," and to use disinfectants.

Non compos mentis. Not of sound mind.

Normal. The ordinary and proper state. Thus the temperature of the body in health is 98.4°, and this is said to be *normal*. The normal respiration in an adult should be about 16 a minute; the pulse about 70 a minute.

Nostalgia. Home sickness, or longing for home, so strongly developed as to cause serious bodily illness.

Nostril. One of the external orifices of the nose.

Nostrum. A quack medicine, or one of which the ingredients are kept secret.

Nullipara. A woman who has never had children.

Nutrient Enemata. A substance that nourishes by rectal injection.

Nux Vomica. The drug from which strychnin is derived. It is used as a nerve tonic and in cases of gastric affection, and also in paralysis. In large doses it is poisonous, and the *antidotes* are an emetic, tannin, chloroform or ether inhalation.

Nymphæ. Two folds of mucous membrane on either side of the vagina; the lesser or inner lips which protect the orifice of the vagina.

O.

Oakum. The fibre obtained by picking old tarred rope into pieces. Used to some extent in surgical dressings.

Oatmeal. The meal made from oats.

Obesity. Excessive fatness.

Obstetrician. One who practises obstetrics.

Obstetrics. That part of medicine and nursing which is connected with midwifery, and with the operations and illness due to the bearing of children.

Obstruction. Stoppage or blocking up of a canal or opening of the body.

Occipital. Relating to the back of the head.

Occiput. The back of the head.

Occlusion. Closure.

Ocular. Relating to the eye.

Oculist. An eye specialist.

Odontalgia. Toothache.

Odontoid. Tooth-like.

Official. Term applied to medicines which are in the "Pharmacopeia."

Ohm. Unit of resistance in galvanism.

Oidium Lactis. A micro-organism found in milk, and supposed to cause thrush in children.

Oiled Silk. Silk impregnated with boiled oil, semi-transparent, and waterproof; used in the antiseptic dressing of wounds. Prepared in rolls of about 5 yds. long, and in widths of 25, 29, and 32 inches.

Ointment. A soft application having healing virtues, usually consisting of lard impregnated with some drug. Ointment should be spread on lint with a palette-knife, and applied next the sore.

Oleaginous. Oily.

Olecranon. The bone composing the point of the elbow.

Olfactory. Relating to the sense of smell.

Olive Oil. A teaspoonful is sometimes given to children as an aperient. It is used to oil instruments, such as the nozzle of an enema syringe.

Omentum. A fold of fat in front of the intestines.

Onychia. Inflammation of the matrix of a nail.

Oöphorectomy. Removal of the ovaries.

Oöphoritis. Inflammation of the ovaries.

Opacity. Want of transparency, cloudiness.

Operation. An act, especially a surgical act upon the body. *Operating-table*, the table on which a patient lies during a surgical operation.

Ophthalmia. Inflammation of the eye. Once contracted, the cure is chiefly in the hands of the nurse; for constant care is alone successful. Rags used about the eyes must be promptly burnt, and the nurse must wash her hands in disinfecting fluid, for ophthalmia is contagious. *Granular* ophthalmia is a chronic form with granulation of the lids.

Ophthalmia Neonatorum. Ophthalmia of the new-born.

Ophthalmoscope. A small instrument fitted with a magnifying glass, and used to examine the eye.

Opiate. A drug which causes sleep.

Opisthotonos. A spasm which arches the back; seen in severe cases of tetanus.

Opium. A preparation of poppy-juice, much used to induce sleep and to allay pain. It contracts the pupil. Children are specially susceptible to the influence of opium. In large doses it is a poison, the *antidotes* being external, stimulation, cold water to the face, an emetic.

Optic. Relating to the sight.

Orbit. The bony cavity which holds the eye.

Organ. A part constructed to exercise a special function. *Organs of generation*, those that are functional in reproduction; the genitalia. *Pelvic organs*, those situated in the pelvis. *Urinary organs*, those concerned in the secretion and excretion of the urine—the kidneys, bladder, ureters, and urethra.

Organic. Relating to the organs; thus, *organic* disease of the heart means that the structure itself is affected; whereas, if the evil is *inorganic* it may be the result of mischief elsewhere, causing functional derangement of the heart.

Orthopedic. Relating to the cure of deformities in children.

Orthopnea. Breathlessness, the patient needing always to maintain an upright position.

Os. A bone; also the mouth, as of the uterus.

Os Calcis. The bone of the heel.

Os Externum. Entrance to the uterus.

Os Internum. The inner orifice of the uterus.

Os Uteri. The mouth of the womb.

Osseous. Like bone.

Ossification. Hardening into bone.

Ostalgia. Pain in a bone.

Osteitis. Inflammation of a bone.

Osteomalacia. Softening of the bones. Test urine. A lengthy and fatal illness.

Osteomyelitis. Inflammation of the soft tissue of bone. Apt to occur after amputations and to end fatally.

Osteotome. A surgical saw for sawing bones.

Osteotomy. An operation on a bone; generally breaking and resetting it, as is done in the case of bow-legs. An anesthetic is used; the patient has to be kept quiet, and is put in splints.

Osteotrite. An instrument used for scraping bone.

Otalgia. Ear-ache.

Otitis. Inflammation of the middle ear, marked by rolling of the head and severe pain. Hot poultices, or even leeches, may be ordered.

Otorrhea. A purulent discharge from the ear. In all diseases of the middle ear there is fear of penetration to brain and fatal termination.

Ounce. In fluid measure about two tablespoonsful.

Ovarian Tumor. A tumor of the ovary. May be cystic and grow to a tremendous size, and may contain hair, teeth, or sebaceous matter.

Ovariotomy. Excision of an ovary; a serious operation, the nursing treatment of which is very important.

Ovaritis. Inflammation of an ovary, very painful, and likely to depress the patient.

Ovaries. Two small, oval bodies situated on either side of the uterus, the female organ in which ova are formed.

Over-distention. The state of being excessively stretched, or dilated.

Oviduct. The Fallopian tube between the ovary and the womb, conveying the ova.

Ovisac. Small vesicles found near the surface of the ovary.

Ovum. The egg: the embryo from which the fetus grows. Plural, *ova*.

Oxalic Acid. A poisonous acid obtained from wood sorrel; *antidotes*, chalk and magnesia.

Oxygen. A colorless, odorless gas. Inhalations in heart and chest cases. Applied to ulcers and sores.

P.

Pack. Wrappings of wet fabric applied to a patient. A *cold pack* consists in wrapping the patient in a sheet wrung out of cold water, then enveloping him in a dry blanket and mackintosh, and leaving him for thirty minutes, or the prescribed time. An *ice pack* consists in wringing out towels in ice water and applying them to the patient, perpetually changing them as they get warm. This last is to lower the temperature, and the temperature should be taken every few minutes while it is in progress. *Hot pack* is sometimes used in dropsy cases, and is applied in the same manner as the cold pack. Of course the patient's body-clothing is removed before a pack is given; and care must be taken to avoid chill, particularly after the pack, when the patient must be carefully dried. *Packing the vagina* consists in inserting in the vagina pads of antiseptic cotton held together by a cotton string.

Pads. Little pledgets of cotton enclosed in antiseptic gauze, and used instead of sponges.

Paget's Disease. A bright raw patch on the nipple that after some time develops into a cancer.

Pain. Bodily or mental suffering. *Griping pain*, a spasmodic pain in the bowels. (See also *Bearing-down pains*, and *Labor-pains*.)

Palate. The roof of the mouth.

Palliative. A medicine which relieves but does not cure.

Palpation. Examination by the hand.

Palpitation. Rapid throbbing of the heart. Should always be reported to the doctor. Keep the patient at rest during the attack.

Palsy. The popular name for paralysis (which see).

Panacea. A medicine alleged to cure all diseases.

Pancreas. A long, flat gland behind the stomach; it supplies a juice which aids digestion to the duodenum.

Pancreatin. The active principle of pancreatic juice.

Pancreatitis. Inflammation of the pancreas.

Papilla. A small eminence; generally applied to the nipple.

Papule. A small, solid pimple.

Paquelin's Cautery. A galvanocautery on the syringe and ball system, in which the heat is obtained by benzoline vapor driven over platinum.

Paracentesis. Tapping for dropsy; performed on the abdomen, chest, etc., to discharge the fluid secreted. (See *Aspiration*.)

Paraldehyd. A swift soporific, having a pungent taste. As it is of an oily, unpleasant nature, it is usually given in stimulant (brandy) in the proportion of 1 to 3. It taints the breath. Poison. *Antidotes*, friction, strong coffee.

Paralysis. Loss of sensation and of the power of movement. The one great point for the nurse in these cases is to prevent bed-sores. Measures must be taken to keep the patient dry and clean. Paralysis usually arises from brain disease, from injury to the spine, or nerve disease; it may be partial or complete. *Infantile paralysis* occurs in weakly children under four years: the legs being usually affected. It arises from injury to the marrow of the spine, due to heat, cold, or overwalking. The limbs get thin, and must be kept wrapped in thick wool, and be rubbed night and morning for a quarter of an hour, passing the hand *up* the limb. Douching with hot water or electricity may be ordered. Prevent bed-sores, and give nourishing food.

Paralytic Stroke. A sudden complete attack of hemiplegia.

Paraphimosis. Retraction of the prepuce behind the glans penis.

Paraplegia. Paralysis of the lower half of the body, including the bladder and rectum, so that the nursing directions given under *Paralysis* must be carefully heeded.

Parasite. Any living thing which draws its nourishment from another living thing.

Paregoric. Camphorated tincture of opium used to relieve pain.

Parenchyma. The spongy part of an organ.

Paresis. A slight form of paralysis.

Parietal. The two bones which form the vault and sides of the cranium.

Parietes. The sides of any cavity of the body.

Paronychia. Whitlow; inflammation and abscess at the end of a finger near the nail.

Parotid. Near the ear; applied to a conglomerate gland under the ear.

Parotitis. Mumps (which see).

Paroxysm. Periodical increase of disease.

Parturient. Child-bearing.

Parturition. The act of bringing forth young.

Patella. The knee-cap.

Pathogenesis. The origin and progress of disease.

Pathological. Relating to pathology; morbid.

Pathology. The study of the changes in structure and in function that occur in disease.

Patulous. Open, wide.

Peccant. Not healthy.

Pectoral. Relating to the chest.

Pedicle. The foot-stalk which forms the neck of a tumor.

Pediculus. The louse, a parasite infesting the hair and skin. An ointment will be ordered. The head may have to be shaved. If the lice are on the body, see that all clothing is disinfected. Great cleanliness necessary.

Pellagra. An epidemic disease of Southern Europe which has recently appeared in the southern parts of the United States. It is said to be caused by eating diseased maize, but is also dependent on bad hygienic conditions. It is marked by a recurring eruption on the body, which is followed by scaling off of the epidermis. There is also weakness, debility, digestive disturbance, spinal pain, convulsions, melancholia, and idiocy.

Pellicle. A thin skin or membrane.

Pelvic. Relating to the pelvis.

Pelvimeter. An instrument for measuring the size of the pelvis.

Pelvis. The bony basin composed of the hips and the lower bones of the spine, and holding the bowels, bladder, and organs of generation.

Pemphigus. A skin disease which is marked by eruptions of large blisters.

Pendulous. Hanging down.

Peppermint. Carminative and stimulant. A household remedy for flatulence and stomach-ache.

Pepsin. The ferment of gastric juice, which chiefly causes digestion of the food in the stomach.

Peptonized Foods. Food which has been partially digested by artificial means.

Percussion. Striking upon the chest, the sound heard being helpful in diagnosis. Place one finger of the left hand flat on the part to be examined, and strike sharply with the ends of the three fingers of the right hand, holding them at the same length. There is a certain degree of resonance in the sound emitted, but this is dulled when there is fluid in the lung, or the lung is solid. Only a practised ear can detect and learn from the degrees of resonance, but the fact of dulness can be detected by a nurse, and may be useful to her. *Immediate percussion* is that by putting the finger against the patient and striking it, without the intervention of the pleximeter.

Perforation. A hole in an organ caused by disease.

Perforator. An obstetrical instrument for opening the cranium of the fetus.

Pericarditis. Inflammation of the outer coat of the heart; apt to follow in cases of acute rheumatism or typhoid. Perfect rest, light diet, increasing watchfulness to anticipate all the patient's wants. The remedies ordered must be kept ready at hand. The patient will probably breathe better if propped up by plenty of pillows. On no account should the patient be permitted to make a sudden movement.

Pericardium. The outer membrane or sac which holds the heart.

Perineorrhaphy. Operation for repairing a perineum ruptured during labor.

Perineum. The space between the anus and the vagina.

Periosteum. The membrane covering a bone.

Peripheral. Relating to the circumference or outer surface.

Peristaltic. The worm-like contractions and movements of the intestines in forcing onward their contents.

Peritoneum. The membrane or sac which holds the intestines and viscera generally.

Peritonitis. Inflammation of the peritoneum. The symptoms are shallow breathing, vomiting, pinched features, abdominal pain with knees drawn up, and rapid pulse. May follow any abdominal operation, therefore these symptoms must be watched for, and at once reported. Treatment differs with the doctor in charge. A cradle must be placed over abdomen. Collapse must be feared. In peritonitis with perforation of the bowel, the operation of laparotomy may be performed. The convalescence is slow, and care is needed for a long time. Death may occur from exhaustion.

Peroneal. Pertaining to the fibula. A branch of the posterior tibial artery.

Peroxid. Oxid containing a large preponderance of oxygen.

Peroxid of Hydrogen. A powerful antiseptic and germicide; used as a disinfectant in diphtheria, etc., and as an antispasmodic.

Pertussis. Whooping-cough; a contagious spasmodic cough, common in childhood. The first ten days the patient should be kept indoors; the disease runs its course in from two to three months. Watch for chest complications.

Pessament. A massage movement up the spine; pick up the flesh, and roll it between the thumb and fingers.

Pessary. An instrument worn in the vagina to prevent or remedy prolapse of the uterus; generally in the shape of a ring or a ball, and made of gutta-percha or vulcanite.

Petechiæ. Small red spots on the skin.

Pétrissage. A massage movement, consisting in picking up and rolling the muscles between the thumb and fingers—it is slow and continuous.

Petroleum. A mineral oil; antiseptic and expectorant. Used to expel worms.

Petrous. Stony; a term given to a hard part of the temporal bone.

Peyer's Patches. Small glands situated on the surface of the intestines.

Phagedena. Ulcers or wounds, which spread rapidly and slough.

Phagocytes. Free cells of the body (leukocytes, endothelial cells, etc.) that counteract the action of disease microbes.

Phalanges. The small bones of the fingers and toes.

Pharmacopeia. An authorized handbook of directions for compounding medicines.

Pharmacy. The science of preparing and mixing medicines or drugs.

Pharyngitis. Inflammation of the pharynx.

Pharynx. The membranous sac at the back of the mouth and leading to the stomach.

Phenacetin. An antipyretic in the form of a tasteless, reddish powder.

Phlebitis. Inflammation of the veins. It often occurs following infectious diseases. The affected part must be kept quiet. The limb should be elevated and ice-bags applied. The part must never be rubbed, as this might dislodge the clot.

Phlebotomy. Bleeding a patient by opening a vein in the arm.

Phlegm. Thick expectoration coughed up in chest diseases.

Phlegmasia Alba Dolens. Commonly called "milk-leg," a form of phlebitis occurring sometimes after labor and in other conditions. The leg becomes swollen, white, and tense, and is very painful. Slightly raise the limb on a pillow, and arrange it so as to give as much ease as possible. The danger is of the clot moving and going to the heart and causing sudden death. The swelling usually begins to go down after the ninth day. Gentle friction after the eighth week may be used.

Phlegmatic. Sluggish.

Phonetic. Relating to the voice.

Phosphate. A compound of phosphoric acid and a base. Phosphates in urine appear as a dense, white deposit; a few drops of nitric acid dissolves them at once.

Phosphorus. A non-metallic element, used as a tonic and stimulant. It must not be allowed to come in contact with water. Give after food.

Phosphuria. Excess of phosphates in the urine.

Photophobia. Dread of light, a symptom of inflammation of the eyes.

Phthisis. Consumption; tubercular disease of the lungs. The patient must be weighed, the diet nourishing, chills avoided, temperature taken, and the sputa noted as to color and amount. The night-sweats are often a distressing symptom, leaving the patient weak and wretched, and necessitating much patience and care in providing warm, dry changes. In cases of pyrexia, the temperature must be taken during the attack. The patient should wear wool only; see that the bed-clothes are light. Before washing or dressing the patient, and immediately after, give some stimulating food. If hemorrhage comes on, give ice to suck. Note if the urine is scanty.

Physiology. The science which treats of living bodies, and the laws which govern them.

Physostigmin. Another name for eserin, used to contract the pupil and diminish intra-ocular tension.

Pia Mater. The fine membrane surrounding the brain and spinal cord.

Piles. Enlarged veins about the rectum; hemorrhoids. Bleeding piles cause discharge of blood; blind piles do not.

Pilocarpin. A drug which causes increased salivation and perspiration.

Pipette. A small graduated tube for taking up liquids.

Pityriasis. A scaly skin disease. The serious variety *rubra* is most common in men of middle age. Diet nourishing, no stimulants. *Rosea*, which is most common in children, is not so obstinate to cure.

Placebo. Medicine given to please the patient, often only tincture of orange or bread pills.

Placenta. The after-birth; a circular, flesh-like substance surrounding the fetus, and expelled from the womb after the birth of the child.

Placenta Prævia. Presentation of the placenta before the fetus. In these cases hemorrhage must be feared.

Plague. An extremely infectious disease caused by the Bacillus pestis, which invades the blood and organs of the patient. It is communicated by flies, fleas, rats, mice, and dogs. It occurs in three forms, the bubonic, the septicemic, and the pneumonic. There is headache, backache, and mental depression. There is a chill followed by fever. The tongue becomes brown; the glands, especially those of the groin, swell, forming buboes, which may soften and resolve or else suppurate and break through the skin. An eruption of plague spots may appear over the body. Death occurs in three or four days, except in the septicemic and pneumonic forms, when it occurs in twenty-four hours. The first consideration in the nursing is to prevent the spread of the disease. The clothing, urine, feces, sputum—in fact, everything that has been in contact with the patient—requires immediate and rigorous sterilization. The bodies of the dead should be cremated. Convalescents should be kept isolated for a month after the disappearance of the fever. The buildings exposed to contamination should be fumigated. The patient should be kept as comfortable as possible, the fever being combated in the usual way. The nurse must keep herself free from infection by the use of corrosive sublimate, carbolic acid, and alcohol solutions.

Plantar. Relating to the sole of the foot.

Plasma. The liquid in which the corpuscles of the blood float.

Plaster of Paris. Used for preparing bandages for slight fractures. Rub the dry powder into a crinoline muslin bandage and pass it through a basin of water as it is used. For the ordinary bandage, mix the plaster of Paris with cold water into a cream (an assistant must stir the cream constantly or it will harden), place the bandage in plain water, and re-roll in the plaster of Paris.

Plasters. Used for keeping wounds together, binding sores, and applying medicaments to different parts of the body. The spreading of plasters is sometimes left to the nurse. Take a piece of glazed muslin and stretch it on a board with drawing-pins, spread the plaster hot with the edge of a warm knife. To apply a surgical plaster cut it into convenient strips, and hold the wrong side against a tin filled with hot water; this is a cleaner method than dipping the plaster into hot water. In removing plasters, commence at the corners and work toward the centre: never pull away from the wound, or you may tear it open. The marks left by plasters can be removed with chloroform.

Pledget. A small compress of lightly-rolled lint.

Plethora. Fulness; an excess of blood.

Pleura. The membranous bag which holds the lung and lines the cavities of the thorax.

Pleurisy. Inflammation of the pleura. This, like all chest cases, needs careful nursing; it is often found in conjuction with pneumonia or phthisis. Temperature every 4 hours; poultices will probably be ordered; temperature of room 65°; fever diet. The sputa must be watched. In cases of effusion, aspiration may be performed. Great care is necessary in convalescence, and woolen vests must be worn.

Pleuro-pneumonia. Pleurisy combined with pneumonia. The term is usually applied to a certain cattle disease.

Pleximeter. An ivory disc or other hard substance placed on the body to receive the stroke in mediate percussion (*q. v.*).

Plexus. A network of vessels or nerves.

Pneumogastric. Relating to the lungs and the stomach, and applied to certain nerves, etc., connecting these two parts.

Pneumonia. Inflammation of the lungs. *Single pneumonia* means one lung only is affected; *double pneumonia*, that both lungs are diseased. Nearly every physician has a different method of treating pneumonia, but the most common nursing treatment is to keep the patient in bed, in a room with temperature of 65°; jacket poultices every four hours; temperature every four hours; keep a steam kettle going; liquid stimulating food frequently. Some physicians, instead of stimulating diet, apply hot jacket poultices. Others, again, instead of poultices, apply ice-bags or Leiter tubes. The sputa must be kept for the inspection of the doctor. The crisis usually comes about the end of the first week, if delayed beyond the ninth day the case is critical; the convalescence takes three weeks. Relapse is always to be feared, and flannel vests must be worn.

Pneumothorax. Air in the pleural cavity. Causes shock, which is usually met with stimulants and opiates. Light food frequently. Aspiration may have to be performed.

Pock-marks. The pits left by the small-pox pustules.

Podophyllum. A drug used as a purge and as an alterative.

Poison. A substance capable of producing noxious and even fatal effects when absorbed by the system. For a classification of poisons and their antidotes see p. 227.

Polarization. The tendency to a reverse current in the battery cell.

Politzer Bag. An india-rubber bag with long tube and nozzle. Used in ear cases, etc.

Polyclinic. A large general hospital.

Polyemia. Excess of blood.

Polyuria. Excessive flow of urine of low specific gravity, and consequent thirst of patient. Measure urine. Nourishing food. Avoid chills and make the patient wear flannels.

Popliteal. Behind the knee; a term given to a certain artery. The continuation of the femoral artery, etc.

Pore. A small opening.

Positive Pole. The pole of a galvanic battery, by which electricity flows out from the generator.

Position. Posture or attitude of the body in obstetric, gynecologic, or surgical examination and operation. The *dorsal* position is lying on the back; the *knee-chest* position is the patient on the knees; *Sims'* position is the patient lying on left side. (See pp. 151–156.)

Posthumous. After death; a posthumous child is one born after the father's death.

Post-mortem. The opening and examining of a dead body.

Post-partum. After labor. *Post-partum hemorrhage* is bleeding after the child is born.

Posture. Should be noted by the nurse; the knees are drawn up in abdominal pain; the body lies flat in fevers; shoulders raised in chest and heart complaint; arms overhead in heart complaint; lying on affected side in pneumonia, on stomach in colic. Slipping off the pillows is a sign of exhaustion.

Potassium. A useful alkali; the bicarbonate is given in indigestion and rheumatic gout: the bromid in nervous diseases, epilepsy, etc.; the iodid in aneurysm, scrofula, etc., and to check milk-secretion; and the permanganate is a favorite disinfectant.

Pott's Disease. (See *Spinal Curvature*.)

Pott's Fracture. Fracture of the fibula close above the ankle, sometimes also with dislocation of the ankle. Usually set in plaster splint. Twelve weeks' rest necessary.

Poultices. One of the most important items of nursing treatment (see p. 105).

Poupart's Ligament. A muscle of the abdomen, stretching between the ilium and the pubis.

Precordial. The region in front of the heart. *Precordial pain*, spasmodic pain about the heart, not organic.

Predisposition. A state of body rendering it specially liable to certain diseases.

Pregnancy. The state of being with child. Usual period 280 days. Morning vomiting a marked symptom. Test urine monthly. *Abdominal pregnancy*, fetation in the abdomen (see also *Extra-uterine*). For *signs* of pregnancy see p. 127.

Premature. Occurring before the proper time.

Presentation. Position of the fetus at birth.

Preventive. A medicine or agent which prevents the taking of disease; prophylactic.

Primary. The early stage, or symptom, of disease.

Primipara. A woman who has borne a child but once.

Probang. A slender rod, sometimes with sponge attached, used to remove foreign bodies from the esophagus.

Probe. A slender rod, usually of silver, used for exploring wounds.

Proctitis. Inflammation of the rectum.

Prognathous. Forward prominence of the jaws.

Prognosis. The art of foretelling the course of a disease.

Prolapsus Ani. The falling of the membrane of the rectum through the anus. Not uncommon in children who are constipated, and therefore given to straining. Regulate the bowels, and when they are acting press the buttocks together.

Prolapsus Uteri. The falling

down of the uterus into the pelvic cavity.

Promontory. A projection of the internal ear.

Pronation. Downward turning of the palm of the hand.

Prophylactic. A preventive of disease.

Prostate. Heart-shaped gland at the neck of the male bladder. When enlarged, causes retention of urine.

Prostration. Extreme exhaustion of nervous or muscular force; collapse.

Protective. Thin green oil-silk put between the first and second layers of gauze in an aseptic dressing.

Protein. Protoplasm; an artificial compound almost similar to white of egg.

Proud Flesh. Too vigorous granulation, growing up above the proper surface of the wound. May have to be touched with caustic.

Prurigo. A skin disease marked by very irritable and lasting eruptions. Tar, sulphur, and naphthol may be applied locally, or by means of vapor baths.

Pruritus. Local skin irritation, generally of the genitals. Medicated baths and soothing ointments may be ordered.

Prussic Acid. Violent poison found in bitter almonds, laurel-leaves, etc. *Antidotes:* alkalies, chlorine, cold water dashed on face and neck. (See *Hydrocyanic Acid.*)

Psoas. Two muscles of the loin; a *psoas abscess* is a chronic abscess of the loins. These abscesses are most wearisome cases to nurse, and need the greatest care to avoid sepsis. If the dressing is left to the nurse, she must be most particular in every detail. Nourishing diet, cod-liver oil. The abscess is usually lanced, a drainage-tube inserted, and an antiseptic dressing applied.

Psoriasis. A scaly skin disease of a chronic character. Medicated baths, ointments, and arsenic subcutaneously, may be part of the treatment to be carried out by the nurse.

Psychical. Relating to the mind.

Ptomaines. Minute alkaloid bodies found in putrefying matter, and of a poisonous nature.

Ptyalism. Excessive flow of saliva. Sometimes a symptom of mercurialism.

Puberty. The period of development of the generative faculties or when reproduction first becomes possible.

Pubes. The hair-covered region about the genitals.

Puerperal. Related to child-bearing.

Puerperal Fever. Septicemia; fever following labor, and due to contagion. Note the temperature and pulse every four hours. Be extremely careful to use antiseptics freely. The fever is usually acute, reaching a crisis in a few days; then if the temperature, pulse, and respiration decrease, recovery is possible. Death usually results from exhaustion.

Puerperal Mania. Usually begins from 4th to 14th day after childbirth, with pain in head, restlessness and insomnia. Never leave patient alone; keep the child and the family away.

Puerperium. The period from childbirth to the time when the uterus or womb has regained its normal size; about six weeks.

Pulmonary. Relating to the lungs.

Pulsatilla. A drug used particularly in cases of arrested menstruation.

Pulsation. Beating of the heart, or of the blood in the arteries.

Pulse. To feel pulsation, put the three middle fingers on the radial artery at the wrist, beneath the thumb. The pulse in health beats about 120 to the minute in infants, 80 in children, 60 to 70 in maturity, and 50 in old age. An *intermittent* or irregular pulse is a sign of exhaustion; a *full* pulse is a sign of the early stage of fever; a *thread-like* pulse is a sign of want of blood, and is common after hemorrhage; a *hard* pulse is one which is not easily stopped by pressing on it; a *soft* pulse is easily compressible (see p. 39).

Pupil. The round opening in the center of the iris.

Purgative. A medicine for causing evacuation of the bowels. Should be given on an empty stomach.

Purpura. A serious skin disease marked by purple patches, caused by the escape of blood from the vessels into the skin. Complete rest in horizontal position, and nourishing diet.

Purulent. Pus-like.

Pus. Matter given off from an open sore. *Laudable* or healthy pus is cream colored, not offensive, and not very thick. *Unhealthy* pus is brownish, offensive, and clotted. If stringy, it is a sign of scrofula. Pus in the urine shows as a white sediment, thick and ropy; it gelatinizes when liquor potassæ is added.

Pustule. A pimple containing pus.

Putrefaction. The rotting away of animal matter. Decomposition advanced to an offensive stage.

Pyelitis. Inflammation of the pelvis of the kidney.

Pyemia. Blood-poisoning caused by pus-producing microörganisms in the blood, and marked by the presence of abscesses. It usually occurs about the second week after an injury or operation. Be very careful not to convey the contagion elsewhere. Diet nourishing. Take precaution against bed-sores. Use antiseptics freely. Note the temperature and pulse both morning and evening.

Pylorus. The opening of the stomach into the intestines.

Pyrexia. A state of fever.

Pyuria. Pus in the urine.

Q.

Quarantine. A period of separation of infected persons from others, necessary to prevent the spread of disease.

Quartan. A fever rising and falling in periods of four days. If quinin is given, note if it arrests the paroxysms.

Quickening. The first movements of the fetus in the womb, usually felt by the mother at the end of the fourth month.

Quicklime. Unslaked lime.

Quinin. An alkaloid obtained from cinchona. It has remarkable antiperiodic properties, and is particularly useful in intermittent fevers. It should be given before food.

Quinsy. Inflammation and enlargement of the tonsils. (See *Tonsillitis.*)

Quotidian. A fever having a period of twenty-four hours. If quinin is given, note if it arrests the paroxysms.

R.

Rabies. Madness in animals; hydrophobia.

Racemose. Glands having numerous branched tubes.

Rachitis. Rickets; a constitutional disease of childhood, marked by curving of the spine or long bones, and enlargement of the joints. Light, air, good food, and soap and water are the best cures for rickets, but if the disease is far advanced, splints may have to be applied, and raw-meat juice and cod-liver oil be given. Rickety children are specially liable to colds, and must be warmly yet lightly clad.

Radial. Relating to the radius. *Radial artery* is the smaller of the two terminal branches of the brachial. Begins at the bend of the elbow and extends along the radial side of the forearm, passes around the outer side of the carpus, and forward to the palm.

Radical. That which goes to the root; thus radical treatment aims at an absolute cure, not a palliation.

Radius. The smaller bone of the forearm, from the elbow to the wrist.

Rale. Slight rattling sound heard in the air-passages upon auscultation.

Rash. (See *Eruption.*)

Reaction. The effect produced in response to treatment.

Reagent. One substance used as a test for another.

Reaumur. A temperature scale of 80 equal degrees, from freezing (0°) to boiling point.

Recrudescence. Return of bad symptoms, especially fever.

Rectitis. Inflammation of the rectum.

Rectocele. Prolapsus of the rectum through the vagina.

Rectum. The lower end of the

large intestine from the colon to the anus.

Rectus. Straight; applied to certain muscles.

Recurrent. Returning again.

Reducible. A term given to such hernias, dislocations, etc., as can be replaced.

Reflex Action. Involuntary action caused by irritation of an afferent or sensory nerve.

Regimen. A rule of diet.

Regurgitation. A backward flow of blood through defective valves; an eructation.

Relapse. A return of disease after convalescence has once begun.

Relapsing Fever. A contagious fever due to starvation. Light nourishing diet given very frequently, fresh air, warmth, and cleanliness.

Remittent. Returning at regular intervals; applied to agues and fevers.

Renal. Relating to the kidney.

Rennet. A nutritious whey.

Repair. (See *Healing*.)

Resistance. In electricity the non-conducting force of certain bodies to the current.

Resorcin. Antiseptic and antipyretic used chiefly in dermatology. May cause poisoning.

Resorption. The absorption of a fluid or substance previously deposited.

Respiration. Breathing. In counting a patient's respiration, hide the fact of what you are doing; for instance, when taking the pulse, note the respirations. They should be in infants 50 to the minute, in children 36, in adults 16 to 18. Note whether the breathing is shallow or from low down, whether it is regular or intermittent. Note in which position the breathing is easiest, and if accompanied by any noise such as the crowing of croup, or the snoring due to enlarged tonsils.

Respirator. An instrument worn over the mouth to prevent direct contact with cold air.

Rest-cure. The mode of treatment of patients suffering from hysteria and neurasthenia, namely: (1) rest, (2) isolation, (3) systematic feeding, (4) massage and electricity.

Restless. Deprived of repose or sleep; unable to sleep.

Resuscitation. Reviving those who are apparently dead. The Marshall Hall method of restoring the apparently drowned is rolling the body over from the back to the side, and pressing the chest on the raised side.

Retching. Ineffectual efforts to vomit.

Retention. To hold back. Inability to void urine.

Retina. The inner membrane of the eye, upon which objects are reflected; it is formed by an expansion of the optic nerve.

Retractor. An instrument used to keep the edges of a wound apart, or to keep back muscles during an amputation.

Retroversion. A morbid, backward inclination, as of the womb.

Rheophores. The current-bearers of a battery: they are placed directly on the organ or muscle to be galvanized.

Rheum. Rhubarb: a favorite purge.

Rheumatism. A diseased condition of the blood; if acute, it is commonly called rheumatic fever; but it may be chronic or muscular. There is always great pain, and the nurse must so arrange the bed-clothes that no weight rests on the affected limbs. Put the patient between blankets. The temperature should be taken every four hours. Fever diet. Keep the temperature of the room not higher than 60°. The two chief causes of death in cases of acute rheumatism are heart complications and hyperpyrexia. The patient must never be allowed to move suddenly, even during convalescence. Cold baths or cold packs will probably be ordered for hyperpyrexia. Test the urine for acid reaction (see p. 325).

Rhinitis. Inflammation of the nose.

Rhinoscope. Nasal speculum.

Rhubarb. A favorite household medicine given as a purgative.

Ribs. Long lateral bones enclosing the chest, seven pairs of true ribs which join the breast bone, and five pairs of false ribs. *Float-*

ing ribs are the two lower pairs of ribs.

Rickets. (See *Rachitis.*)

Rigor. A sudden attack of shivering, usually the herald of a disease. A nurse should note how long the rigor lasts, what the temperature of the patient was during the attack, and the hour of its occurrence. Rigors should be immediately reported to the sister in charge.

Rigor Mortis. The stiffening of the body after death. *Articulo mortis* is the moment of death.

Ringworm. A circular skin eruption; contagious and very difficult to cure if occurring on the scalp. The hair should be shaved and a cap of oil-silk worn. The ointment ordered must be rubbed in daily after washing the places with soap and water, and the nurse must see that the patient's general health is maintained. A separate brush and comb and towel must be kept for the patient.

Risus Sardonicus. A convulsive grin, symptomatic of lock-jaw.

Rochelle Salt. An aperient containing potash and soda.

Roseola. A rose-colored rash due to slight fever, and of no great importance,

Rubefacients. Mild irritants which cause redness of the skin.

Rubella. German measles. Keep the patient in bed three days, and in the house a week.

Rubeola. Measles (which see).

Rupture. Hernia (which see). *Rupture of a blood-vessel* means the bursting of the same.

S.

Sac. A small bag, such as a hernial sac.

Saccharin. A substitute for sugar, used in diabetic cases; it is usually in the form of tabloids, two of which (½ gr. in each) will sweeten a cup of tea.

Sacculated. Bagged, or pursed out.

Sacrum. The lowest division of the back-bone, forming part of the pelvis.

St. Anthony's Fire. Erysipelas.

St. Vitus' Dance. Chorea.

Salicylic Acid. An antiseptic and antipyretic. A favorite drug for allaying the joint-pains of acute rheumatism. Causes depression and singing in the ears. Steel instruments must not be put in this acid.

Salicylic Wool. An antiseptic wool impregnated with the white crystals of the acid and a small quantity of glycerin. This wool must not be shaken, or the crystals fall out and cause sneezing.

Saline. Containing salts. A compound of an acid and an alkali.

Saliva. The watery fluid poured into the mouth by the salivary glands.

Salivation. An excessive secretion of saliva.

Salol. A white powder composed of salicylic and carbolic acids. Given internally in acute rheumatism, and also used locally as an antiseptic. Note any decrease of urine.

Saltpeter. Nitrate of potassium: diuretic and sedative.

Salt-solution. Sodium chlorid (common salt) dissolved in distilled water. In medicine it is employed to restore to the system the fluids lost by severe hemorrhage, etc.

Salve. An ointment.

Sanguineous. Relating to the blood.

Santonin. A worm expeller. Usually given in cream. After a few doses the sight becomes disordered.

Sapremia. Poisoning of puerperal women by retention of some decomposing matter. The cause being removed, there is rapid recovery.

Sarsaparilla. A mild laxative obtained from the root of a Central American vine. Given in strumous and skin cases.

Sartorius. The long muscle of the thigh.

Scab. An incrustation formed over a wound.

Scabies. The itch; a contagious skin disease due to a parasitic insect. A sulphur bath will probably be ordered (four ounces of sulphid of potassium to thirty gallons of water, in a porcelain bath), in which the patient should be allowed to remain for twenty minutes. Disinfect (or burn) all the clothing. Vaselin will relieve the soreness caused by scratching.

Scalds. Cover up the scalded part with the dressing ordered (lint soaked in carron oil probably), and expose the part to the air as little as possible. Guard against shock and exhaustion.

Scalpel. A straight knife; chiefly used in dissecting.

Scapula. The shoulder-blade.

Scarification. Small incisions for blood-letting; used instead of cupping.

Scarificator. A small box-like instrument fitted with many little blades, and used to perform scarification.

Scarlet Fever. Scarlatina; an infectious fever accompanied by redness of the skin, and most common in children. Period of incubation, four to eight days; rash on second day. The rash shows chiefly on the chest and back, and lasts about a week. Then the fever subsides. Desquamation lasts about five weeks, and this is the infectious period. Keep the room cool and well ventilated, and a sheet soaked in carbolic solution hung over the door. Isolation is absolutely necessary, as is also disinfection and fumigation. (See *Fumigation*.)

Schizomycetes. A general term for all classes of bacteria.

Schneiderian Membrane. The lining membrane of the top of the nose.

Sciatica. Neuralgia of the sciatic nerve—the large nerve of the leg. A very painful disease. Such local treatment as the injection of morphia, atropia, or thein, or the application of blisters, or cupping, may be left to the nurse. Keep the patient warm.

Scleroderma. A chronic disease of the skin causing hardness. Turkish baths and rubbing in of lanolin or other ointment.

Scleroma. A hardening of the tissues. *Scleroma neonatorum*, infantile disease. Rare, very fatal.

Scoliosis. Lateral curvature of the spine.

Scorbutus. Scurvy; a skin disease marked by dejection and anemia, and caused by want of vegetable food. Plenty of green vegetables and lemons needed in the diet. Do not let the patient sit up or make any sudden movement, or syncope may be the result.

Scrofula. Constitutional debility, with a tendency to tuberculosis. Characterized by swelling and suppuration of the glands of the neck. Fresh air, nourishing diet, cod-liver oil, and attention to the general health are necessary. The glands may have to be removed.

Scruple. A weight equal to 20 grs. troy.

Scurvy. Scorbutus (which see).

Sebaceous. Fatty; secreting oily matter.

Seborrhea. Excessive secretions of the sebaceous glands.

Secondary Disease. A disease consequent on another disease gone before.

Second Intention. The healing of a wound by means of granulation, or the growing of new skin.

Secretion. Substance separated from the blood by a natural function of the body.

Section. (See *Cesarean*.)

Sedative. A soothing medicine.

Seidlitz Powder. A popular aperient in the form of two powders, which, when mixed, effervesce.

Semicircular Canals. Three canals of the internal ear.

Senility. Decline of power after passing the climacteric.

Senna. A disagreeable rapid aperient, usually given as a black draught. The syrup of senna is best disguised if given in coffee.

Sepsis. The condition of putrefaction.

Septic. Anything that causes putrefaction.

Septicemia. Septic matter in the blood; blood-poisoning. Use disinfectants freely.

Septum. The division between two cavities; such as *septum ventriculorum*, which separates the right ventricle from the left.

Sequelæ. Morbid conditions remaining after, and consequent on, some former illness.

Serum. The fluid of the blood in which the corpuscles float.

Shingles. (See *Herpes*.)

Shiver. A tremor or shaking of the body; often concomitant with or symptomatic of fevers, especially those of an infectious nature.

Shock. Sudden prostration due to painful impressions; a frequent cause of death after operations and accidents, especially after burns. It is best met by stimulants and warmth.

Show. A popular name for the sanguineous mucous discharge from the vagina before labor.

Sigmoid Flexure. The flexure of the descending colon, shaped like the letter S; serves to remove the fecal matter from the body by muscles of its own and ends in the rectum.

Silkworm Gut. The thread drawn from a silkworm killed when ready to spin the cocoon.

Sinapism. A mustard plaster.

Sinciput. The upper fore part of the head.

Sinew. A tendon uniting a muscle to a bone.

Sinus. A passage leading from an abscess, or some diseased part, to an external opening.

Sitz-bath. A hip-bath. (See p. 87.)

Sleeping Sickness. (See *Trypanosomiasis*.)

Sling. A bandage suspended from the neck for the support of a wounded arm or hand.

Slough. Dead matter thrown off by gangrene or ulcers.

Small-pox. (See *Variola*.)

Sneezing. Convulsive action of the respiratory muscles from irritation of the mucous membrane lining the nasal cavity.

Snoring. (See *Stertor*.)

Snuffles. The peculiar hard breathing noise by infants affected with chronic cold in the head.

Sodium. The basis of common salt. The *bicarbonate* is a favorite remedy for acidity of the stomach. The *chlorid* is an emetic. The *sulphate* a cathartic. The *nitrate*, given in epilepsy, etc., may cause serious symptoms. *Sodamint* is a preparation given for indigestion.

Solubility. Capable of being dissolved.

Solution. The product of a solid dissolved by a liquid. In *therapeutics*, the termination of a disease. *Solution of continuity*, the separation of united parts, or division of tissues, as from a wound.

Somnambulism. Walking in the sleep.

Sopor. An unnatural profound sleep.

Soporific. An agent which induces sleep.

Sordes. The secretions collected about the teeth and on the lips in fever.

Souffle. Sound heard on auscultation.

Sound. A probe-like instrument used for exploring.

Spasm. Sudden involuntary movement.

Spatula. A flat, flexible, blunt knife, used for spreading ointments and poultices. Also, in a smaller form, used to press down the tongue when the throat has to be examined. Every nurse should carry a spatula.

Specific. Applied to a medicine, it means infallible; applied to a disease, it means of special character.

Specific Gravity. The weight or density of a substance compared with some standard substance—usually *water* in the case of liquids.

Speculum. A polished instrument for examining the interior cavities of the body.

Sphincter. A circular muscle which contracts the orifice of any organ.

Sphygmograph. An instrument affixed to the wrist, which moves with the beat of the pulse and registers the rate and character of the beats.

Spica. A spiral bandage done with a roller in a series of figure eights. Most used for the shoulder, groin, thumb, and great-toe.

Spina Bifida. A congenital malformation of the spine, forming a kind of tumor. Found in infants, and often terminating fatally. Usual treatment is tapping and subsequent dressing of absorbent wool, rather tightly strapped on. Watch for convulsions, signs of brain mischief, or paralysis.

Spinal Cord. That part of the central nervous system occupying the spinal canal.

Spinal Curvature. Constitutional curving of the spine. When accompanied by caries of the spine it is called Pott's disease. A Sayre's jacket of plaster of Paris, applied during suspension, will probably be used. Long cases, needing good food and prevention of sores and the recumbent position.

Spine. The back-bone or vertebral column.

Spirometer. An instrument for measuring the capacity of the lungs.

Spissated. Thickened.

Spleen. An oval body to the left of the stomach. Forms and purifies the blood. Hemorrhage is peculiarly liable to occur after any operation on the spleen. Such operations are always serious, and need careful nursing.

Splints. Stiff pieces of board or material used to secure rest to some injured part. The most common are wooden splints, but iron, tin, felt, gutta-percha, etc., are used. An *angular* splint has one part at right angles to the other, and is used for the arm, the elbow occupying the angle. An *interrupted* splint has the part just over the wound removed to facilitate the dressing. The nurse's duty is to keep splints clean and pad them for use. The pads should be linen stuffed with antiseptic wool, made slightly larger than the splint; the padding must be even. The pad can either be sown on by cross threads on the wrong side of the splint, or fastened on by three bands of strapping going right round the splint. When necessary, the pads near a discharging wound should be covered with oil-silk.

Sponge. A porous substance, varying in texture, derived from an aquatic organism of low order, and formerly much used in operations. *Artificial* sponges of absorbent wool enclosed in antiseptic gauze are now used extensively instead of the natural sponge.

Sporadic. A disease which is not epidemic, but occurs in one or two isolated cases in a district.

Sprain. Severe strain of a joint without dislocation. Cold-water bandages is the favorite mode of treatment, but severe sprains sometimes need splints, ice-bags, and all the time and trouble given a fracture.

Sputum. Expectorated matter from the mouth.

Squill. Drug used as an expectorant and diuretic. Overdose poisons.

Staff. A lithotomy instrument used to guide the knife.

Stapedius. A muscle of the internal ear.

Stapes. A stirrup-like bone of the internal ear.

Staphyloma. Protrusion of the sclera or cornea of the eye.

Stasis. Defective circulation of the blood.

Stenosis. Contraction of an organ.

Stercoraceous. Resembling the feces.

Sterile. Barren; inability to have children.

Sterilization. Rendered free from germs; generally by boiling.

Sternum. The breast-bone.

Stertor. The rasping, rattling sound produced when the larynx and the air-passages are obstructed with mucus.

Stertorous. The snoring sound of breathing heard in apoplexy, etc.

Stethoscope. A tube used for listening to the sounds of the chest and heart; one end is placed against the patient's chest, and the ear of the listener at the other end. The *binaural* stethoscope has two flexible ends to apply to the ears of the listener.

Sthenic. Strong, active.

Stigmata. Marks on the skin.

Stillborn. Born after the seventh month, but without having made a complete breath.

Stillingia. Drug used as a cathartic; also in cases of syphilis.

Stimulant. That which causes temporary increase of the vital energy.

Stomach-pump. An instrument used for emptying the stomach by the mouth: also to feed refractory patients.

Stomatitis. Inflammation of the mouth, and ulceration; most common in infants. Attend to the diet, give a mild purgative; wash the mouth out frequently with a little borax.

Stools. Discharge from the anus. (See *Motions.*)

Strabismus. Squinting; *divergent* when the eye turns out; *convergent* when it turns in.

Stramonium. A drug used as a sedative. Overdose poisons.

Strangulated. A hernia which cannot be reduced by taxis, but needs operation.

Strangulation. Choking; constriction.

Strangury. Painful passing of urine in drops. Hot sponge to part, hot baths, etc., may be ordered.

Strawberry Tongue. Applied to a characteristic clear-red appearance of the tongue in scarlet fever after a thick white fur has disappeared.

Stricture. Contraction. Usually applied to the urethra, and consequent inability to pass urine.

Stridulous. A creaking sound in breathing.

Stroma. The tissue which forms the foundation of an organ.

Strophanthus. A poison, used in small doses as a heart-stimulant.

Struma. Scrofula; or a scrofulous swelling.

Strychnin. A poison, used as a nerve and spinal stimulant. *Antidotes:* an emetic, strong tea, ether inhalation.

Stump. The part of a limb remaining after an amputation.

Stupe. A fomentation (see p. 103).

Stupor. State of unconsciousness.

Styptic. Agent to arrest bleeding; astringent.

Subclavian. Under the collar-bone.

Subcutaneous. Under the skin.

Subinvolution. A condition of imperfect restoration of the uterus to its original size after delivery in childbirth.

Subluxation. Sprain and partial dislocation.

Subnormal. Below the normal.

Subsultus. Involuntary twitching.

Sudor. Perspiration.

Sudorific. An agent causing perspiration.

Suffocation. Stoppage of respiration. Asphyxia.

Suffusion. Fluid poured out of its natural organ into the surrounding parts.

Sugar. To test for sugar in urine boil together a drachm of urine and a drachm of picric acid, add half drachm of liquor potassæ, reboil; if sugar be present the color will be intense deep red, nearly black.

Suggilation. Livid spots on the body.

Sulphonal. Crystalline tasteless substance, used as an hypnotic. Give 2 hours before bed-time. Note any headache next day.

Sulphur. Used as a laxative. The ointment is used for skin diseases, particularly scabies.

Sulphuric Acid. Vitriol. A poison; the *antidotes* are lime-water, potash-water, oil and milk.

Sumbul. Antispasmodic and stimulant. Given chiefly for neuralgia and hysteria.

Sunstroke. Brain mischief caused by heat. Symptoms: Headache, sickness, confusion of ideas, refusal of food. Put patient in darkened room, and keep quiet. Ice to head.

Superfetation. Supposed conception by a woman already pregnant.

Supination. Turning the palm of the hand upward.

Suppository. A solid medicine introduced into the rectum or vagina.

Suppression. Failure of the kidneys to secrete urine.

Suppuration. Gathering of pus under the skin.

Sutures. Silk, silver-thread, or catgut used to sew a wound or tie an artery (see p. 185). Also the union of flat bones by their margins.

Swelling. Morbid enlargement of a part.

Symphysis. Growing together of bones. *Symphysis pubis*, the line of union of the two pubic bones.

Symptom. A sign by which diseases are recognized.

Syncope. Suspension of the heart's action and consequent state of swoon. Stimulation, warmth, and artificial respiration may have to be tried. Put the patient flat on his back and open the windows.

Synovial Fluid. The liquid secreted in the ligaments that lubricates the joints.

Synovitis. Inflammation of the synovial membrane of a joint.

Syphilis. Venereal disease, specific and contagious. There are three stages, the one marked by primary symptoms, the second a period of outbreak, and the third certain visceral and nervous symptoms. In dressing all sores in these cases the nurse must be most careful to use forceps, and to burn soiled dressings. *Infantile* syphilis is inherited; the infant looks old, head large. (See p. 256.)

Syringe. An instrument for injecting fluids.

Systole. The contraction of the heart in its beat.

T.

Tabes. Wasting; *dorsalis*, a disorder of the spinal marrow, marked by loss of power over the voluntary muscles; *mesenteric*, consumption of the bowels.

Tactile. Relating to the touch.

Talcum. Silicate of magnesia; a white, unctuous powder.

Talipes. Club-foot. *Talipes valgus*, the foot turned outward; *varus*, the foot turned inward; *equinus*, the heel lifted from the ground; *calcaneus*, heel projecting downward.

Tampons. Plugs of antiseptic wool enclosed in gauze, and used for introducing into the vagina, etc. A string is usually attached to the plug to aid in its withdrawal.

Tansy. A favorite household remedy derived from a common plant. Promotes menses, and is a diuretic. Poisonous.

Tape-worm. Tenia (*q. v.*).

Tapotement. A massage movement; the hand is lightly clinched and held hammer-like, used to beat the muscles with swift, short strokes. All beating movements are sometimes included under this term.

Tapping. (See *Aspiration.*)

Tar. A thick, black, resinous substance obtained from the wood of the pine or fir tree.

Tarsus. The seven small bones across the instep.

Tartar. Incrustation on the teeth if they are not kept clean.

Tartar Emetic. Potassio-tartrate of antimony; an emetic; or in small doses a sedative.

Taxis. Hand-manipulation for restoring a part to its natural position, such as reducing a hernia.

Tears. The fluid secreted by the lachrymal gland.

Teeth. The principal organs of mastication. There are four kinds of teeth—*incisors*, *canine*, *bicuspids*, and *molars*. The first set of teeth in childhood are called "milk-teeth," which are only *temporary* teeth. They number 20, 10 in each jaw, namely, 4 incisors, 2 canine, and 4 molars. The two middle teeth of the lower jaw should appear about the seventh month. In the adult the *permanent* teeth consist of 32 teeth, 16 in each jaw, viz.: 4 incisors (front teeth); 2 canines; 4 bicuspids, and 6 molars. (See *Dentition.*)

Temperature. Degree of heat. The average temperature of the body in health is 98.4° F., but it rises slightly at night and falls in the early morning. A temperature of 99½° degrees indicates the presence of fever; a temperature of 104° is serious. In collapse, the temperature falls below the normal point, and may be 96°. A *subfebrile* temperature is slightly feverish; *subnormal* temperature is below the normal; an *algid* body-temperature is seen in pernicious intermittent fevers in which there is great coldness of the surface of the body. The temperature of a sick-room should be 68°

as a rule, rather lower for surgical cases, rather higher for chest cases.

Temples. The part of the forehead between the outer corner of each eye and the hair.

Temporal. Two bones at the side of the skull containing the organs of hearing.

Tenaculum. Small surgical hook to secure arteries, etc., and used by anatomists in dissection.

Tendon. A sinew, a cord of fibrous white muscle.

Tenesmus. Constant futile straining to evacuate the bowels.

Tenia. The tape-worm. When a cathartic has been given with the object of expelling this worm, it is the duty of the nurse to sift the evacuation through fine muslin, and see that the head of the worm comes away. If merely the long flat joints of the worm are expelled, the worm will grow again.

Tenotomy. Cutting a tendon under the skin by means of a small knife especially devised for the purpose. As a rule no anesthetic is used.

Tension. Stretching.

Tensor. A muscle which stretches.

Tent. A prepared roll of lint or cylinder for keeping open a passage.

Terebene. A preparation of oil of turpentine. From 5 to 10 drops on a lump of sugar acts as an expectorant. A teaspoonful to a pint of water for an inhalation.

Terminals. The extremities of a conductor of a battery.

Tertian. An intermittent fever with attacks every third day.

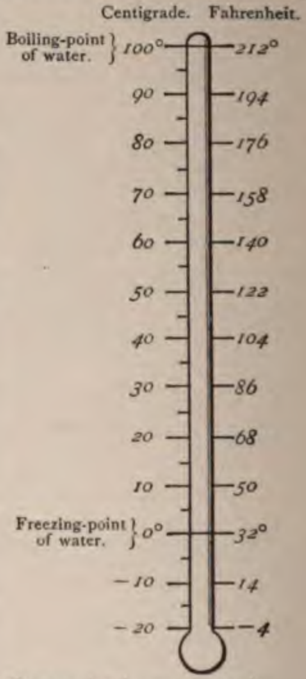
Testicles. The two glands of the scrotum, which secrete the semen.

Testing. Finding the constituents of the urine by means of chemicals. The common tests include acid or alkali reaction, deposits of urates, phosphates or oxalate of lime; pus, blood, chlorids, bile-pigment, albumin and sugar.

Tetanus. Lock-jaw. Severe spasms occur at intervals, during which try to prevent the patient biting the tongue, or in any way injuring himself. Perfect quiet and darkness, as the least irritation renews the spasms. Death may occur about the third or fifth day. Food and medicine can seldom be taken by the mouth in cases of tetanus.

Therapeutics. That branch of medicine which treats of the application of remedies and all forms of cure.

Thermometer. An instrument used to measure the degree of heat. There are several thermometric scales, the one in popular use in America being that of *Fahrenheit.* The accompanying diagram presents to the eye the difference between the markings of the *centigrade* and the *Fahrenheit* scales. *Clinical thermometer* is a slender glass instrument used to discover the temperature of the body. (See *Temperature.*) (See Fig. 7, p. 44.)



Comparative thermometric scale.

Thoracentesis. Puncture of the thorax, as the tapping for pleurisy.

Thoracic. Pertaining to the chest or thorax.

Thorax. The chest; the cavity which holds the heart and lungs.

Thread-worm. Small parasitic worm in the rectum; common only in children. Injections of salt water or quassia may be ordered. *Oxyuris vermicularis.*

Thrombosis. The consequent evils attending the presence of a *thrombus*, or coagulation of the blood, which, forming into a clot, obstructs some blood-vessel.

Thrush. (See *Aphthæ*.)

Thymol. An antiseptic, used as a solution or spray, also as an ointment.

Thymus. A gland at the root of the neck.

Thyroid. The name of the largest *cartilage* of the larynx, and of a *gland* in the front of the neck.

Tibia. The shin-bone; the larger bone of the lower leg.

Tibial. Pertaining to the tibia; the *tibial arteries* are the *posterior* and *anterior*, and pass from the knee to the ankle.

Tic-douloureux. Neuralgia of the face, particularly about the temples.

Tincture. An alcoholic solution of a drug.

Tinnitus Aurium. A ringing in the ears.

Tissue. The texture of a part. *Areolar tissue* is the filmy connective tissue of the body. *Connective tissue*, the white fibrous tissue which surrounds and connects the muscles, fat, etc., of the body. *Elastic tissue*, the yellow fibrous tissue of the elastic ligaments and membranes.

Tolerance. Capacity to take a certain drug.

Tongue-tie. Immobility of the tongue from a short frenum, the fold of mucous membrane in the middle of the under surface of the tongue.

Tonic. A medicine which braces up the general health chiefly by increasing the appetite.

Tonsillitis. Quinsy. Inflammation of tonsils. Generally caused by cold or weakness. Difficulty in swallowing, hence give bread and milk and soft food. Swelling often disappears suddenly on fourth day, but it may go on to suppuration. (See p. 266.)

Tonsils. Two oval bodies one on either side of the throat at the opening of the pharynx. When these glands are removed, rest from talking and eating, and ice to suck will be the nursing treatment.

Torpor. Lethargy and want of feeling.

Torsion. Twisting an artery to arrest bleeding.

Torticollis. Wry-neck. Very often the least touch about the head in these cases will cause painful spasms, so the nurse must be careful. Rest and counter-irritation are usually tried, or, in obstinate cases, an operation is performed, and the contracted nerve is stretched.

Tourniquet. An instrument used to exert pressure on an artery and so arrest bleeding.

Toxemia. A poisoned state of the blood.

Toxic. Poisonous.

Toxicology. Science of poisons.

Trachea. The windpipe; the air-passage from the larynx to the bronchi.

Tracheotomy. The operation of making an opening into the windpipe, and inserting a tube so that the patient breathes through the tube instead of through the mouth. This is performed in cases, such as diphtheria, where the membrane is causing suffocation; or scalded throat, where the swelling is closing the larynx. The nursing is most important. The nurse must remember that the tube must be kept clear, or death will result. Sometimes a small piece of flannel wrung out in hot water and changed every few minutes is kept over the opening of the tube.

Trachoma. Granular lids.

Trance. State of unnatural sleep; catalepsy.

Transfusion. The transfer of the blood from one person into the blood-vessels of another, or the injection of a saline liquid.

Trapezius. A large muscle between the shoulders.

Trauma. A wound or injury. Thus *traumatic gangrene* is gangrene arising from a wound.

Tremor. Involuntary trembling.

Trepan. A circular saw used for trephining. Old term for trephine.

Trephining. Removing a circular piece of bone from the skull.

Trichiasis. Turning in of the eyelashes.

Trichinosis. A disease caused by a spiral worm found in swine's flesh, and called *trichina*.

Tricuspid Valve. The valve of the heart between the right auricle and ventricle.

Trismus. Lock-jaw. *Trismus nascentium*, an infantile disease, very fatal. (See *Tetanus*.)

Trocar. The perforating instrument used to draw off fluids from the body.

Trochanter. Two processes at the juncture of the neck and shaft of femur.

Troche. A medicinal lozenge.

Trunk. All the body except the head and limbs; also the main stem of a nerve or vessel.

Truss. A bandage or belt for retaining a hernia in place.

Trypanosomiasis. A tropical disease due to the presence in the blood of a parasite called *Trypanosoma*. It is marked by irregular fever, emaciation, swelling of the spleen and lymph glands. In Africa it is termed *sleeping sickness*, and in this form is also attended by apathy, difficulty in walking, drowsiness, and sleep.

Tuberculosis. Disease caused by a bacillus to which there is, as a rule, an inherited tendency. Tubercle of the lungs is called "phthisis."

Tumefaction. A swelling.

Tumor. An enlargement due to a permanent morbid growth. Tumors may be *benign* or *malignant*; in the first case, they are not dangerous in themselves; in the second case, they are. They may also be *solid* or *cystic*. *Phantom* tumor is a false tumor of the abdomen, due to distention, peculiar to hysterial women.

Turgescence. Swelling caused by fulness of the blood-vessels.

Turpentine. Used in washing the skin, if it is necessary, to remove all grease. Also used to sprinkle on a fomentation where counter-irritation is required; it must not be left on the patient too long. Styptic and antiseptic. Relieves flatulence and expels worms. Give small dose on sugar, large dose suspended in yolk of egg. (See *Terebene*.)

Tussis. A cough.

Twitching. Irregular spasmodic contractions of the tendons.

Tympanites. Wind-dropsy; a distended state of the abdomen caused by gas in the intestines or peritoneal cavity.

Tympanum. Cavity of the middle ear, commonly called the "drum."

Typhoid Fever. A continued fever, usually attended with ulceration of the bowels and a rose-colored eruption on the abdomen appearing on the seventh day. The patient is kept flat in bed and not allowed to move; liquid diet every two hours, day and night (any solid food may cause perforation of the bowels and death); the temperature taken night and morning, or for the first ten days every four hours. Take precautions against bed-sores. If ordered to sponge the patient, put a little toilet vinegar into the water; cold pack or baths may be ordered. The fever may last three weeks, and complications often follow, so the symptoms must be watched for and reported. Typhoid is infectious through the excreta, and the nurse must be careful to keep a solution of carbolic acid in the bed-pan, and to well flush the drains and put down a liberal supply of disinfectant. All the patient's body-linen and bed-clothing must be soaked in carbolic acid or boiling water before being sent to the washing.

Typhus Fever. A highly infectious fever. Cold bath or sponging may be ordered; temperature every four hours. Rash comes out on seventh day, crisis about twelfth day. Toward the crisis, heart-failure is possible, and stimulants should be at hand. Keep the room well ventilated; liquid diet, and directly the crisis is past, fowls, fish, and chops may be given. The convalescence is rapid as a rule. The utmost care must be exercised to disinfect the patient, the room, and everything that has been in it. (See *Fumigation.*) Burn as much of the patient's body-linen as possible. Watch for retention of the urine, or signs of lung mischief. The nurse must live well herself, and be careful of her health; she must wear only washable dresses.

U.

Ulcer. A sore, attended by discharge. Ulcers are *local* when confined to one spot; *constitutional* when liable to appear on different parts of the body. They are usually dressed with stimulating lotions or powdered oxid of zinc, the dressing firmly bandaged on to support the part.

Ulna. The larger bone of the forearm from the elbow to the wrist.

Ulnar. The name of an artery and a vein running beside the ulna. *Ulnar artery* is one of the two terminal branches of the brachial artery. Begins just below the bend of the elbow, passes to the ulnar side of the forearm, thence to the wrist, and crosses the palm.

Umbilical Cord. The funis; the cord connecting the fetus with the placenta.

Umbilicus. The navel, the scar in the centre of the abdomen where the funis was attached.

Unconscious. The state of being without sensibility.

Unguentum. An ointment.

Union. (See *First* and *Second Intention.*)

Uniparous. Bearing one at a birth.

Urea. The chief solid constituent of urine. To test for an excess of urea, take two drachms of urine, concentrate by evaporation to one drachm, add equal parts of nitric acid, and, if there be an excess, the nitrate of urea will crystallize out in abundance.

Uremia. The symptoms due to retention in the blood of waste matters ordinarily eliminated by the kidneys; a manifestation of Bright's disease or other disease of the kidneys. Cupping or poulticing over the kidneys may be ordered. Measure and test urine. Watch for convulsions.

Uremic Fit. Bears some resemblance to an epileptic seizure. Prevent the patient from injuring himself.

Ureter. The canal between the kidney and the bladder, down which canal the urine passes.

Urethane. An odorless, agreeable hypnotic. It is the ethyl salt of carbonic acid.

Urethra. The canal through which the urine is discharged.

Urethritis. Inflammation of the urethra.

Uric Acid. Lithic acid; its presence in urine is discovered by its resemblance in color to Cayenne pepper. Liquor potassæ dissolves this red deposit.

Urine. The fluid secreted by the kidneys. The normal amount secreted in the 24 hours varies from 30 to 50 ounces in an adult, 10 to 15 in a child, 8 to 10 in an infant. The normal color is pale amber and clear, the specific gravity is from 1.018 to 1.025. The reaction should be slightly acid, save after meals, when it is slightly alkaline. There should be no appreciable sediment. The following may be present in urine and discovered by chemical tests: sugar, albumin, bile-pigment, chlorids, blood, pus, urates, uric acid, phosphates, and oxalate of lime.

Urinometer. A small glass instrument with a graduated stem, used for measuring the specific gravity of urine.

Urticaria. Nettle-rash; a skin disease with eruptions causing great irritation, generally the result of eating some unwholesome food. A soothing lotion (lime-water and zinc), dabbed on with a sponge, or a hot bath if very severe will relieve the irritation.

Uterine. Relating to the uterus.

Utero-gestation. The period of pregnancy.

Uterus. The womb; a fleshy body in the pelvic cavity about 3 inches long, and shaped like a pear; here the ovum grows during the period of pregnancy and the womb enlarges to hold it. All operations involving the uterus are serious, and must be nursed by strict gynecologic rules, especially with regard to the use of antiseptics.

Uvula. A small fleshy body hanging down at the back of the soft palate. When too long it often irritates the throat and has to have a piece cut off. This is a simple operation involving no anesthetic, and merely requiring that the patient suck ice afterward, and take only fluid food for a short time.

V.

Vaccination. Inoculation of cow-pox lymph into the arm as a protection from small-pox. Infants should be vaccinated before they are three months old, unless they have a skin eruption or are in bad health.

Vagina. The passage leading from the vulva to the uterus.

Valerian. A nerve-sedative that increases the heart's action, and is often prescribed in nervous and hysterical complaints.

Valgus. Bow-legged.

Vapor. An inhalation.

Varicella. Chicken-pox.

Varicocele. A swollen and diseased state of the veins of the scrotum.

Varicose. (See *Vein.*)

Variola. Small-pox. An infectious fever marked by an eruption of red pimples on the third day, which, about the eighth day, begin to dry up, the scab subsequently falling off. In *confluent* small-pox the eruption all runs together, there is a high state of fever, and great danger; especially about the third and ninth days. Use rags and artificial sponges for washing the patient, and burn them immediately; if possible, also use old body-linen and burn it. All the bedding, the room, and all its contents must be thoroughly disinfected. (See *Fumigation.*) *Varioloid,* mild small-pox. Watch for ulceration of the mouth or nose, inflammation of the eyes, and symptoms of chest disease. The infection may last two months.

Varus. Knock-knee.

Vas. A vessel, or duct of the body.

Vascular. Relating to vessels.

Vascular System. The system of blood-vessels.

Vaselin. A bland ointment prepared from petroleum, and useful for dressings, greasing suppositories, etc.

Vaso-motor. Causing motion in the vessels; applied to the sympathetic nerves.

Vein. A vessel carrying the blood from the extremities to the heart. *Veins,* non-pulsating vessels which convey blood toward the heart. *Jugular* veins, two large veins of the neck. *Varicose* veins, a swollen state of the veins due to lack of action of the valves. Common in the veins of the leg. An elastic stocking and rest on a sofa may do good. The danger is of the veins bursting, in which case pressure must be applied over the bleeding-point, and also rather nearer the extremity.

Venesection. Bleeding; opening a vein to let out blood. Provide a measuring-glass, into which to receive the blood, and a compress and roller-bandage for the dressing.

Venous. Relating to the veins.

Ventilation. It is part of the nurse's duty to see that her ward or sick-room is properly ventilated. There are very few diseases in which it is not permissible to have the window open for an inch at the top, taking care that the draft does not blow straight across the bed. Always have a small fire, except in very hot weather.

Ventral. Relating to the belly.

Ventricles. The two lower chambers of the heart are known as the right and left ventricles.

Veratrum Viride. A drug obtained from the hellebore, and used as a depressant. It lessens the circulation. Overdose poisons.

Vermicide. A drug used to expel worms. Also called *vermifuge.*

Vermiform Appendix. A curved tube, closed at one end, and opening at the other into the cecum.

Vernix Caseosa. Cheesy stuff covering the fetus.

Verrucæ. Warts.

Vertebræ. The small substantial bones which form the back-bone, or vertebral column. There are 24 vertebræ: 7 *cervical* (neck); 12 *dorsal* (back); 5 *lumbar* (loin).

Vertex. The crown of the head.

Vertigo. Giddiness. Any movement or sense of movement, either in the individual himself or in external objects, that involves a real or seeming defect in the equilibrum of the body and is associated with more or less disturbance of consciousness. This condition may be due to pathologic conditions of the ears, the eyes, the brain, the stomach, the blood, etc.

Vesica. The bladder.

Vesical. Relating to the bladder.

Vesicant. A blistering fluid.

Vesicle. A blister.

Vessels. Canals by which fluid is conveyed from one part of the body to another.

Vestibule. A small cavity of the ear; also the angle between the nymphæ.

Vicarious. When one organ performs the work of another. For instance, when bleeding of the nose takes place in suppressed menstruation.

Villi. Fine soft hairs.

Vinum. Wine.

Virulent. Violent, malignant.

Virus. Contagious matter capable of spreading disease if introduced into the system.

Viscera. The contents of the body-cavities.

Viscid. Sticky and thick.

Vitreous Humor. The glass-like fluid in the eyeball, behind the lens.

Vivisection. Scientific examination of a living animal.

Volatile. That which evaporates quickly.

Volt. A unit of electric force.

Vomit. Involuntary ejection of the contents of the stomach through the mouth.

Vulva. The external organs of generation of a female.

Vulvitis. Inflammation of the vulva.

W.

Water-beds. (See p. 33.)

Water-brash. Heartburn, with flow of bitter water to the mouth caused by indigestion.

Watt. Unit of electrical energy.

Weaning. The termination of suckling.

Wen. A sebaceous cyst.

Wharton's Jelly. The gelatin-like connective tissue of the umbilical cord.

Whisky. An alcoholic liquid distilled from fermented grain; a stimulant.

Whitlow. Inflammation near a finger-nail, with suppuration. Bread poultice till it comes to a head, and then lance it.

Whooping-cough. (See *Pertussis.*)

Wine. The alcoholic fermented juice of the grape. *Port* wine, a heavy wine from Oporto, Portugal. *Sherry*, a brownish colored wine, comes from Spain; the so-called "sherry" wines seldom contain any wine, being an artificial product.

Wolffian Bodies. Two fetal abdominal bodies, forerunners of the kidneys.

Womb. The uterus.

Wood-wool. An absorbent wool used for dressings.

Wounds. A healthy wound, not uniting by first intention, should fill up from the bottom, the edges should not be red or unequal. An abscess wound should pucker and the centre sink.

Y.

Yellow Fever. An epidemic fever marked by a yellow state of the skin, black vomit, etc. The fever is infectious, but the nurse is no more liable to catch it than others not in attendance on the sick. The first feelings are of languor and dyspepsia, followed by twenty-four hours of high fever; if, after these twenty-four hours, the fever declines, there are hopes of recovery. Death may result from violent convulsion or from exhaustion. A mustard plaster to the stomach, or hot mustard bath, allays the sickness and convulsions. Beef-tea decreases the exhaustion. Mild purgatives are good, and any treatment which produces perspiration. The recovery is slow, and food must be given in very small quantities, and be very light. Deafness and blindness may result.

Z.

Zinc. The chlorid is used as a caustic and disinfectant, the sulphate as an emetic in cases of poisoning by atropin, opium, etc. The ointment is used for dressing sores, particularly burns and scalds.

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